SAN FRANCISCO PUBLIC LIBRARY
3 1223 03565 1380

DEPARTMENT OF CITY PLANNING 100 LARKIN STREET · SAN FRANCISCO, CALIFORNIA 94102

DRAFT ENVIRONMENTAL IMPACT REPORT PROPOSED HIGH RISE DEVELOPMENT AT 345 MARKET STREET AND 45 FREMONT STREET SAN FRANCISCO, CALIFORNIA

SAN FRANCISCO CITY PLANNING COMMISSION

EE74.224

DOCUMENTS
JAN 29 19
SAN FRANCISCO
PUBLIC LIBRARY

Review Period
January 27 through
February 27, 1975

D
REF
711.4097
Sa52d

Digitized by the Internet Archive
in 2014

https://archive.org/details/draftenvironmen1975sanf_0

TABLE OF CONTENTS

VOLUME 1

PAGE

SUMMARY iii

I. PROJECT DESCRIPTION.............................. 1

A. SITE LOCATION............................. 1

B. OBJECTIVES................................ 1

C. TYPE OF PROJECT........................... 3

D. PHYSICAL CHARACTERISTICS.................. 3

SIZE AND DESCRIPTION................... 8

NTAL SETTING..........................11

H.....................................11

R.....................................12

A AND FAUNA...........................12

URAL AND SOCIO ECONOMIC FACTORS.........12

MADE FACILITIES.......................13

TED PROJECT...........................23

NTAL IMPACT OF PROPOSED PROJECT.........25

LITION................................25

....25

C. WATER.....................................26

D. PLANT AND ANIMAL LIFE.....................27

E. METEOROLOGY AND AIR QUALITY...............28

F. TRANSPORTATION AND CIRCULATION SYSTEMS
(PUBLIC AND PRIVATE.......................29

5/S

SAN FRANCISCO
PUBLIC LIBRARY

REFERENCE
BOOK

Not to be taken from the Library

TABLE OF CONTENTS

VOLUME 1

PAGE

SUMMARY iii

I. PROJECT DESCRIPTION 1

A. SITE LOCATION 1

B. OBJECTIVES 1

C. TYPE OF PROJECT 3

D. PHYSICAL CHARACTERISTICS 3

E. SITE SIZE AND DESCRIPTION 8

II. ENVIRONMENTAL SETTING 11

A. EARTH 11

B. WATER 12

C. FLORA AND FAUNA 12

D. CULTURAL AND SOCIO ECONOMIC FACTORS 12

E. MAN-MADE FACILITIES 13

F. RELATED PROJECT 23

III. ENVIRONMENTAL IMPACT OF PROPOSED PROJECT 25

A. DEMOLITION 25

B. LAND 25

C. WATER 26

D. PLANT AND ANIMAL LIFE 27

E. METEOROLOGY AND AIR QUALITY 28

F. TRANSPORTATION AND CIRCULATION SYSTEMS (PUBLIC AND PRIVATE 29

TABLE OF CONTENTS (continued)

PAGE

G. LAND USE....................................33

H. POPULATION.................................33

I. SERVICES, UTILITIES AND SCHOOLS..............34

J. SOCIAL AND ECONOMIC EFFECTS.................41

IV. ANY ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSAL IS IMPLEMENTED.............47

V. MEASURES PROPOSED TO MINIMIZE IMPACT..............48

VI. ALTERNATIVES TO THE PROPOSED ACTION...............50

VII. RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY..............................52

VIII. ANY IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED...52

IX. GROWTH-INDUCING IMPACT OF THE PROPOSED ACTION......53

X. ENVIRONMENTAL IMPACT REPORT AUTHORS AND CONSULTANTS.......................................54

VOLUME 2

APPENDIX A: UTILITIES AND SERVICES IN THE BEALE MARKET AREA...................................55

APPENDIX B: WIND TUNNEL STUDY..........................57

APPENDIX C: EXTERIOR NOISE REPORT......................109

3 1223 03565 1380

S.F. PUBLIC LIBRARY

LIST OF PLATES

PAGE

1. Location Map 2

2. Site Plan - Traffic Transportation at Street Level 4

3. Traffic Transportation Plan First Basement 5

3a. Traffic Transportation Plan Second Basement 6

4. Bechtel II Elevation 7

5. Aerial Photo of Project Site 10

6. Existing Building Height 14

7. Existing Building Age 15

8. Ground Floor Use 16

9. Off-Street Parking 18

10. Parking Meter Spaces 20

11. Number Location and Type of Parking Meters Loading and Towaway Zones and Parking Meters 21

12. Bechtel Development Plan 24

13. Daily Electrical Load Distribution Curve 37

14. Annual Electrical Load Distribution Curve 38

15. Daily Natural Gas Load Distribution Curve 39

16. Annual Gas Load Distribution Curve 40

17. Shadow Diagram 44

D REF 711.4097 Sa52d

San Francisco (Calif.).
City Planning
Draft environmental
impact report, proposed
1975.

SPACE BELOW INTENTIONALLY LEFT BLANK

SUMMARY

The proposed project would consist of two 34-story office buildings, a parking garage and a landscaped plaza in the one block area south of the intersection of Beale and Market Streets. The building at 45 Fremont would provide office space for the Bechtel Corporation and the one at 345 Market would be an investment building with multi-tenant occupancy.

The major adverse impacts of the project would occur during construction. The noise, dust and traffic interference during construction can be reduced by appropriate controls, but cannot be avoided. The project would contribute to the development of the downtown area south of Market Street and is compatible with the Urban Design element of San Francisco's Master Plan. Increased demand for services provided by the City would be slight and would be offset by the increased revenues. Some local increase in automobile traffic could be expected, but City-wide dependency upon the automobile would tend to decrease because of the increased employment opportunities near public transportation facilities.

The proposed project is included in Bechtel's Development Plan for a two-block area. The overall plan emphasizes pedestrian circulation, and seating and gathering areas. An adverse effect of the high buildings would be increased wind velocity in certain areas approximately 12 percent of the time during the winter. The layout of pedestrian areas would be studied in detail in order to mitigate this effect.

Implementation of any future projects within the Bechtel Development Plan is presently uncertain. Separate environmental impact reports would be prepared for any such projects before they were undertaken.

SPACE BELOW INTENTIONALLY LEFT BLANK

DRAFT ENVIRONMENTAL IMPACT REPORT
PROPOSED HIGH RISE DEVELOPMENT
AT 345 MARKET STREET AND 45 FREMONT STREET
SAN FRANCISCO, CALIFORNIA

I. PROJECT DESCRIPTION

A. SITE LOCATION AND OWNERSHIP

The site of the proposed project is a one-block area located in downtown San Francisco. The site consists of the major portion of Assessor's Block 3710 which is bounded by Market, Mission, Fremont and Beale Streets. Plate 1 illustrates the location of the project area.

The site of the Bechtel II Building at 45 Fremont Street is owned by Bechtel Corporation whose principal office is in the eastern corner of the same block, at 50 Beale Street. One lot of this block, owned and occupied by Greyhound Bus Lines, is not part of the project site. Bechtel and others, representing owners of the remaining property in Block 3710, have entered into a joint venture for development of an investment office building at 345 Market Street and parking structure within the block.

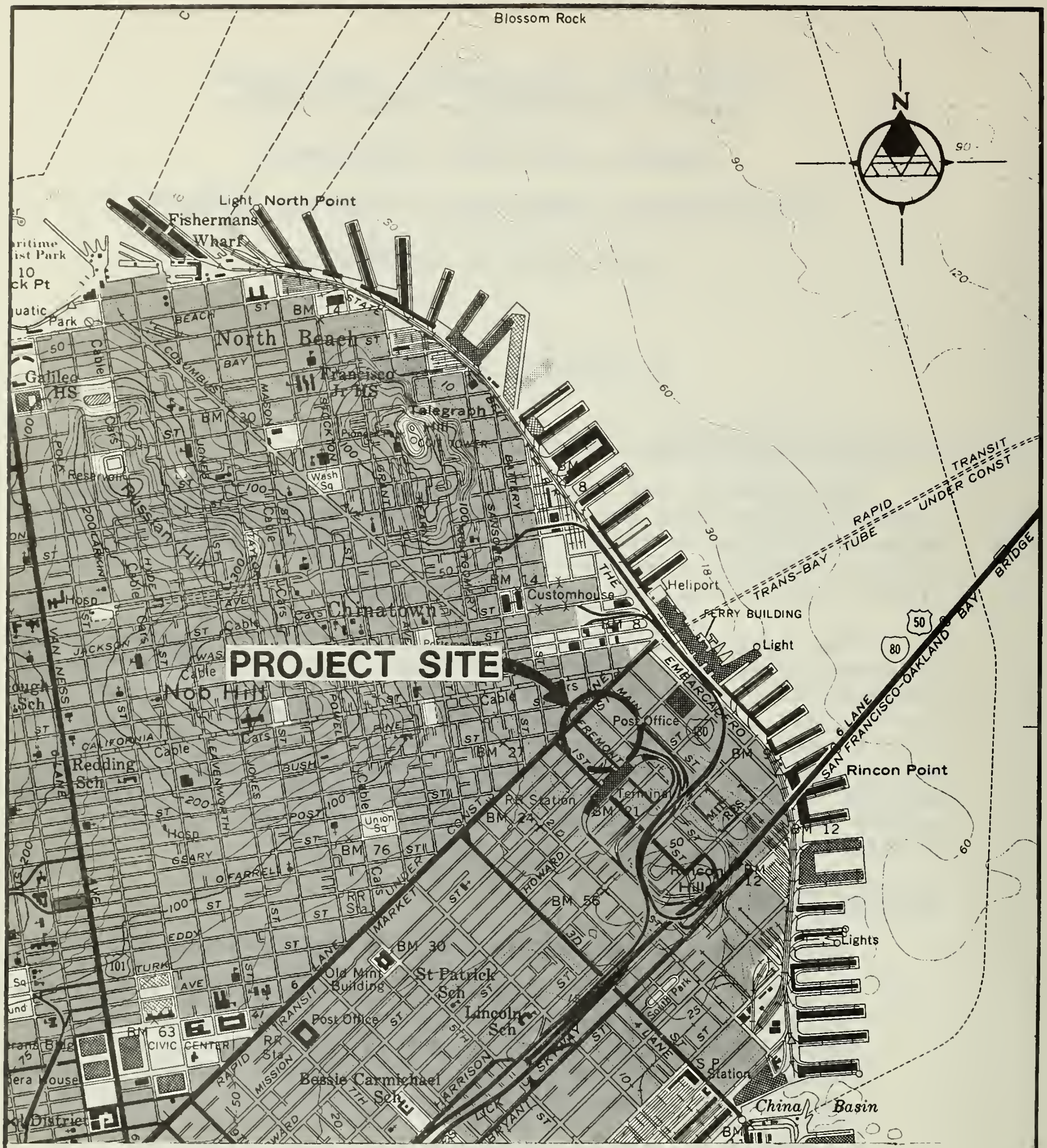
B. OBJECTIVES

Objectives of the project are to provide the following:

1. A safe, attractive, efficient and economical centralized office area for Bechtel's San Francisco staff within the guidelines established by the San Francisco Planning Commission and the San Francisco Building Code. Bechtel facilities in San Francisco are presently in over 20 locations, and it is desired that a central location be provided to reduce the number of such scattered locations.

2. An aesthetically appealing office building for income-producing purposes.

3. Convenient parking facilities for Bechtel and tenant employees, and attractive pedestrian accommodations within the development.



SAN FRANCISCO NORTH, CALIF.
N3745—W12222.5/7.5

1956
PHOTOREVISED 1968
AMS 1559 IV SW—SERIES V895

LOCATION MAP

1 ½ 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

PLATE 1

C. TYPE OF PROJECT

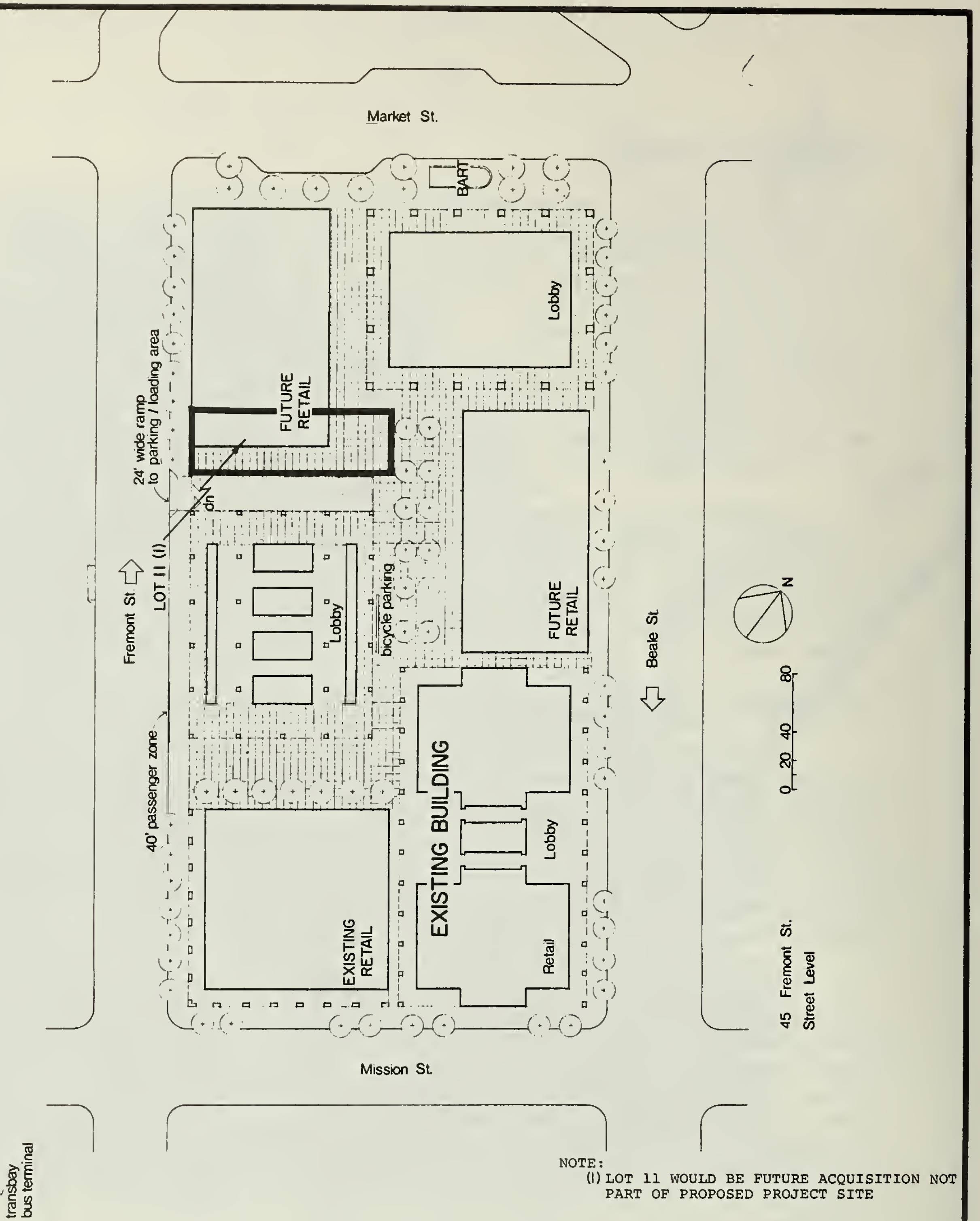
The project proposed for construction would consist of two multi-story buildings, pedestrian facilities to provide for movement between buildings in the block and an underground parking garage. The Bechtel II Building would consist of a 34-story tower with a single basement, a ground level, a mechanical level and 32 office floors providing approximately 535,000 square feet of occupiable area. The basement would provide off-street loading facilities and service elements. The Investment Building would also have 34 stories and approximately 535,000 square feet of occupiable area. The basement there would have a connection to the BART Embarcadero Station.

The parking garage would have two underground levels providing a total of 200 parking spaces. Access would be from Fremont Street as far from Market Street as possible. Retail activity would eventually occupy most of the ground level facing both Beale Street and the interior block pedestrian areas when full development is completed.

D. PHYSICAL CHARACTERISTICS (See Plates 2 through 4.)

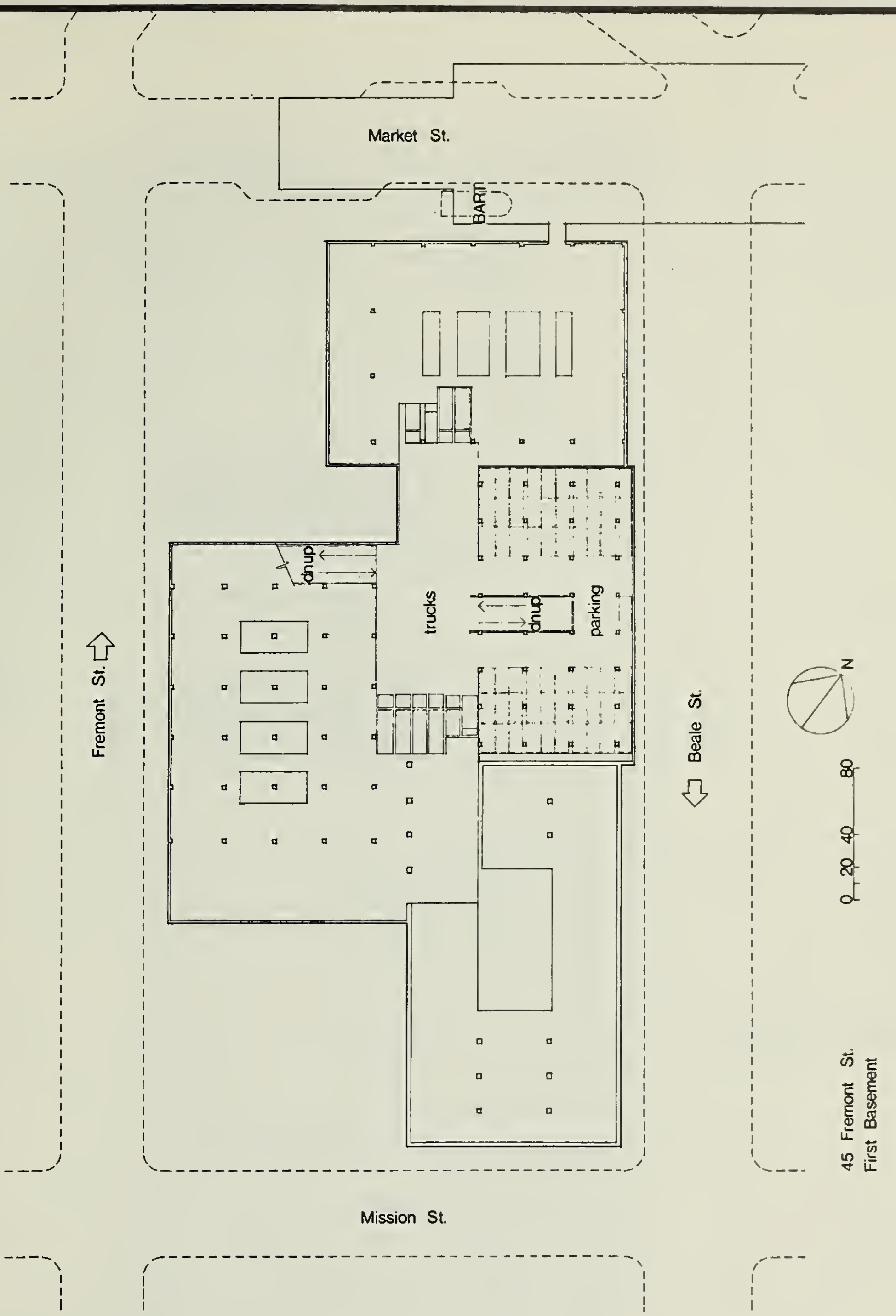
The project would conform to the Urban Design Element of the Comprehensive Plan for San Francisco. The total height of the towers would not exceed 460 feet; the applicable height limitation now in effect for the site would permit 600 feet. The dimensions of each of the towers would be approximately 125 x 155 feet which produces a diagonal of less than 200 feet. The code limit, which technically applies only to the tower above 150 feet, would permit a 200-foot diagonal.

Total gross area of the Bechtel II Building would be approximately 685,000 square feet, including the basement. The ground floor, completely surrounded by a landscaped pedestrian area, would be taken up by lobby and elevator space. The areas to be planted are indicated on the Site Plan, Plate 2. The plan also indicates that access would be from Fremont Street as well as from the interior pedestrian walkway areas. A vehicle ramp from Fremont Street would be provided to the first basement service and parking level. Off-street loading docks would be provided at the service level as shown on Plates 3 and 3a. The 34-story tower of Bechtel II would be clad in a metal skin which would be painted in a non-reflective light color chosen to conform with the Urban Design Element of the San Francisco Master Plan. Glass would be a non-reflective tinted glass. The building surface would be a flush wall (Plate 4). It is planned to provide a bridge connection between Bechtel II and the existing 50 Beale Street Building at the fourteenth floor level as indicated on Plate 4. Particular attention would be given to the visual relationship between Bechtel II, the existing



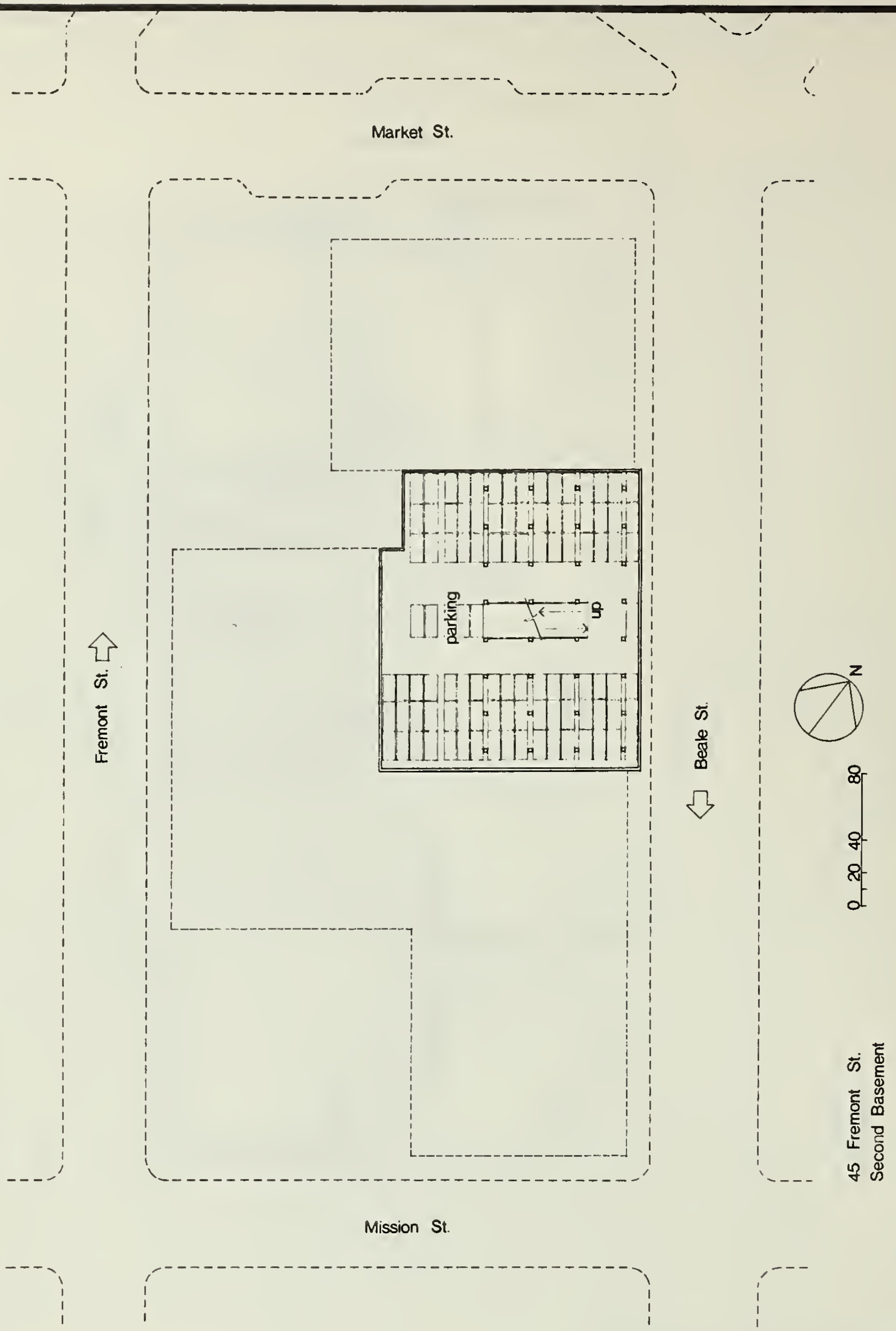
NOTE:
(1) LOT 11 WOULD BE FUTURE ACQUISITION NOT PART OF PROPOSED PROJECT SITE

SITE PLAN
TRAFFIC/TRANSPORTATION PLAN
STREET LEVEL



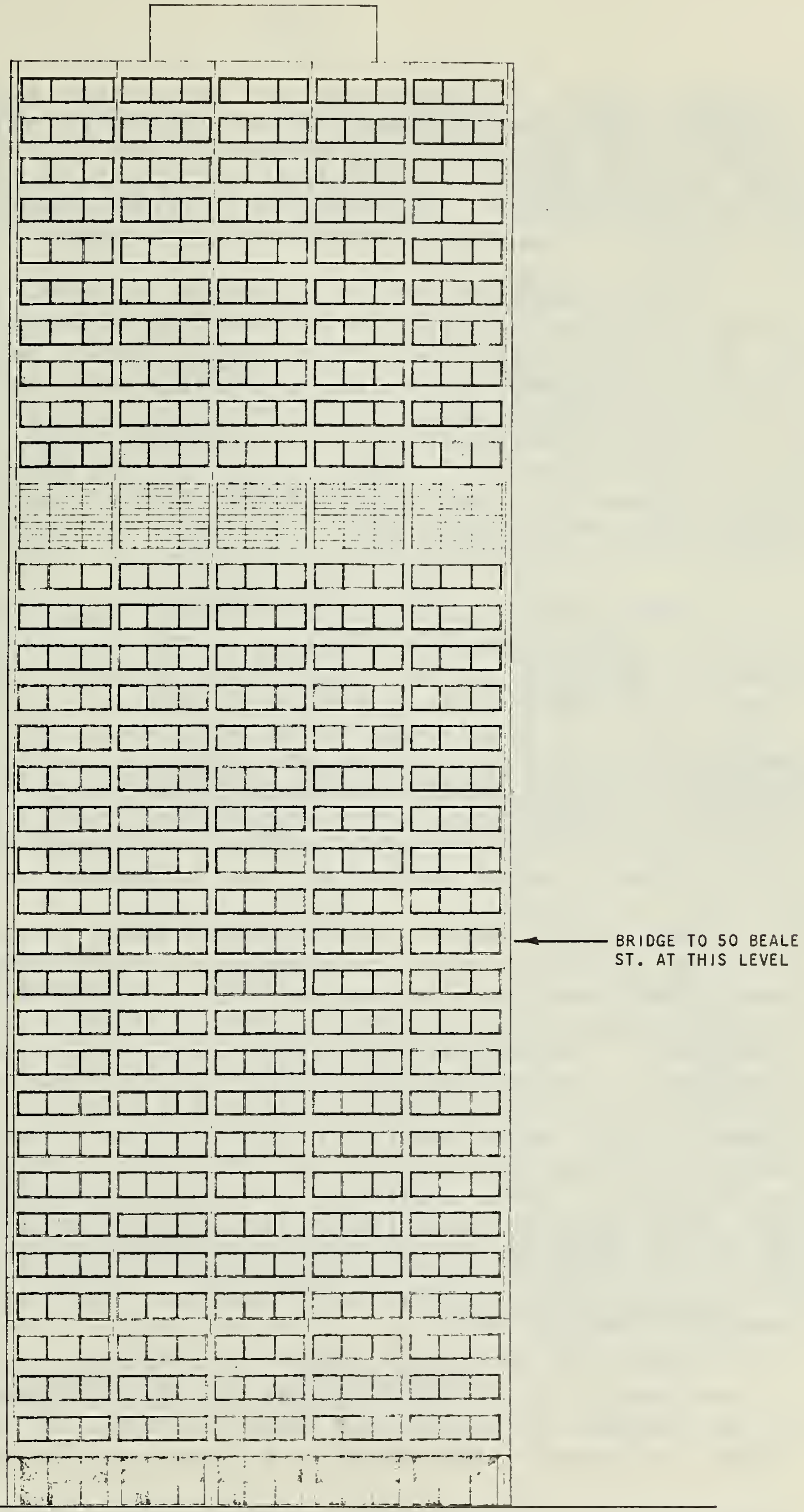
TRAFFIC/TRANSPORTATION PLAN
FIRST BASEMENT

PLATE 3



TRAFFIC/TRANSPORTATION PLAN
SECOND BASEMENT

PLATE 3A



BECHTEL II ELEVATION

50 Beale Street Building and the investment building facing Market Street. The 50 Beale Street Building employs an essentially flush aluminum wall medium bronze in color. The flush wall of the Bechtel II Building would relate to 50 Beale but would be of lighter color and of different exterior proportion to provide an appropriate variety of visual experience.

The investment office building would be located on the corner of Market and Beale Streets. This building would also be 34-stories high. The street level facade would be set back from the property lines thus providing for pedestrian circulation along Market and Beale Streets as well as to the interior of the block connecting to the proposed Bechtel II Building. The ground floor would be occupied by the main building lobby and by commercial and retail uses. A below-grade connection to BART would be provided with escalators up to street level either within the lobby area or under the building overhang.

The exterior would be a flush or moderately revealed* wall of a light colored material. The building exterior would be designed to be compatible in color and scale with other developments along Market Street as well as the Bechtel II Project. A small pedestrian mall would be located immediately west of the building which would lead into a series of pedestrian areas bisecting Block 3710. These would ultimately provide the opportunity for additional retail activity included in the Bechtel Development Plan to encourage public circulation. These retail locations are indicated on Plate 2.

The joint venture by the lot owners of Block 3710 provides an opportunity to develop a coordinated approach to development whereby the new building elements can be related to each other both spatially, and in terms of form and exterior treatment. Particular attention has been given to the site plan and to pedestrian circulation at ground level. The plan provides for through-block pedestrian movement from all directions. Paved areas would allow for flow around the buildings. Outdoor seating and gathering areas of an intimate scale would be provided. There would be generous landscaping, and retail and other pedestrian oriented activities would be encouraged as the Bechtel Development Plan proceeds with future prospects.

E. SITE DESCRIPTION

The site of the proposed development consists of all of Assessor's Block 3710 except Lot 11 as shown on Plate 2. It is bounded by Market and Beale Streets on the northward sides; by Mission and Fremont Streets on the southward sides.

---

* Windows set back six to twelve inches.

The total site area is approximately 145,700 square feet, of which approximately 63,018 square feet is covered by existing buildings that would remain and 38,000 square feet by buildings which would be demolished. Approximately 44,682 square feet is presently used for parking.

Existing buildings that would be replaced consist of the following:

ADDRESS	PRESENT USAGE	TYPE OF BUILDING
47 Fremont	Vacant	4-story brick
49 Fremont	Delicatessen, wholesale trade	4-story concrete
341 Market	Offices and small* shops,coffee shop	5-story brick
16 Beale	Offices and* bar	4-story brick

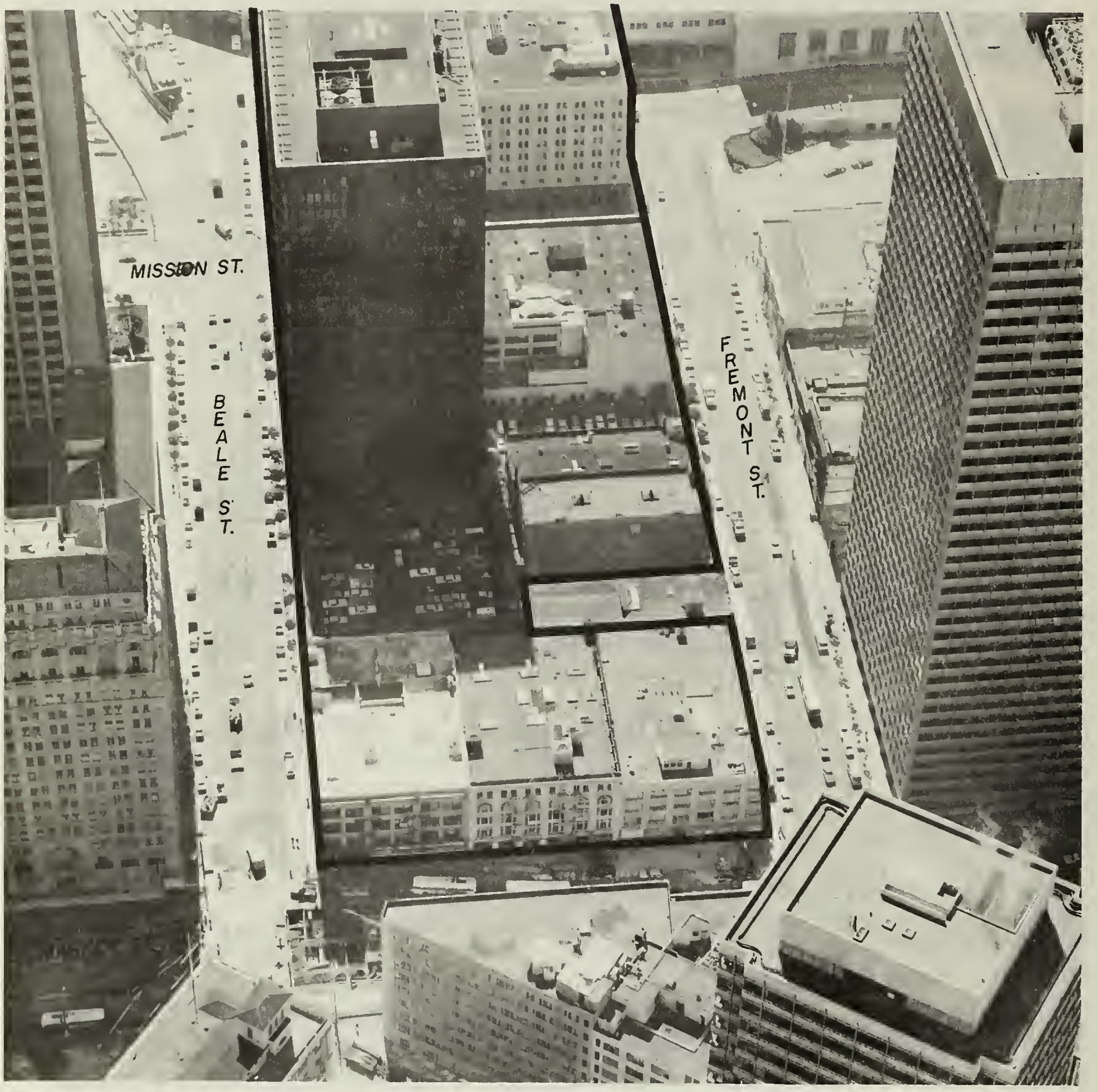
The project would cover approximately 41,000 square feet at ground level by the proposed office buildings. The percent coverage would be as tabulated below:

CATEGORY	AREA (SQ. FT.)	PERCENT OF TOTAL SITE
Existing Buildings	63,018	43.2
New Towers	41,000	28.-28.1
Total Covered	104,018	71.3
Total Site	145,700	100

The site is relatively flat and level. Much of the area that would be covered by buildings is now utilized as a parking lot with approximately 350 spaces. The lot is paved with asphalt and landscaped around all four sides of the main lot (Plate 5). A row of trees has also been planted along one edge of an extension of the main lot.

---

*Now vacant (January 20, 1975).



AERIAL PHOTOGRAPH OF PROJECT SITE

II. ENVIRONMENTAL SETTING

A. EARTH

The ground surface is essentially level at very nearly elevation 0.* Prior to the 1850's the general area of the project site was under water within San Francisco Bay. Between 1870 and 1875, a sea wall was constructed and the project site was reclaimed from the bay by earthfilling. Accordingly, the site and nearby areas are directly underlain by 20 to 25 feet of sandy fill placed during the 1850's.

Below the sandy fill material is approximately 30 feet of soft, compressible marine clay, locally termed Recent Bay Mud. The low strength and high compressibility of this stratum has dictated that foundation support for virtually all major buildings in the site's neighborhood be provided by piles driven into the next lower soil stratum.

The next lower stratum consists of approximately 20 to 30 feet of competent sands (capable of carrying heavy loads). These materials were probably laid down as beach deposits or alluvial deposits, at a time in the geologic past when sea level was lower than it is at present.

Beneath the above described materials is approximately 100 feet of Old Bay Clay with intervening layers of sandy soils. These Old Bay Clay materials were probably deposited during the Pleistocene Epoch (more than 1 million years ago) when the sea was as much as 300 feet below its present level. These materials are quite stiff (non-plastic) and capable of bearing heavy loads.

The remaining soil materials consist of varying thicknesses (generally greater than 60 feet) of sands, silts, and clays which lie directly over bedrock known in geologic terms as the Franciscan formation. In this area the rocks of the Franciscan are chiefly sandstone, much of which is of a particular type called graywacke because of its clay content and grain character.

The depth of non-rock deposits above bedrock, in the profile described above, is in excess of 260 feet. The great depth of soil deposits overlying bedrock is a reflection of the fact that an ancient erosional bedrock canyon once existed along the general area of what is today Market Street.

---

* San Francisco Datum: approximately 8.6 feet above mean sea level.

B. WATER

Groundwater at the site in 1966 was at -9 feet.* Measurements have not been recorded recently, but at nearby locations the level has been lowered to below -20 feet by dewatering (pumping out) of large construction projects between 1966 and 1970. It is likely that the level is now between -10 and -20 feet and may still be rising slowly. The quality of groundwater is not high enough for consideration as a potential economic source of drinking water. Recharge of groundwater is negligible.

Surface water or ponding as a result of accumulation of rain water in low spots is infrequent because surface water generally drains from the paved areas and travels by the way of gutters to the sanitary-storm sewer system. In some areas surface water may seep into the top layers of soil and remain perched above an impermeable layer of Recent Bay Mud. In some construction projects this perched water must be removed during excavation.

C. FLORA AND FAUNA

The only plant cover on the site, except for a few weeds, has been planted. Landscaping around the existing parking lot includes eight Liquidamber on the Beale Street side, four eucalyptus, seven redwood and six Liquidamber trees around the other three sides. There are eleven Liquidamber trees and a ten-foot strip of privet hedge planted on that part of the parking lot extending to Fremont Street. Numerous shrubs and flowers growing in pots and planters are placed among the trees along the southeast side of the lot. Ivy is growing along the wall of the building at 20 Beale Street. Ordinary soil flora and fauna are assumed to be associated with the plants.

No visible signs indicate the presence of small animals or birds. There are no nests in the trees but it is possible that birds occasionally alight there. None were observed during site visits in July and August 1974. No endangered species of animals were found to live on the site.

D. CULTURAL AND SOCIOECONOMIC FACTORS

The project site at present is in transition from an unattractive depressed area into a modern business district.

---

* San Francisco Datum. This level (-9 feet) is approximately 1/2 foot below mean sea level.

The block bordered by Market, Mission, Beale, and Fremont is the part of the city designated as "South of Market." Originally, this block was part of Yerba Buena Cove, which extended in an arc from Clark's Point at the foot of Telegraph Hill to the present Montgomery Street and around to the foot of Rincon Hill. In the early 1800's Yerba Buena Cove was a favorite place for ships to unload their cargo. Ships were often scuttled and left in the cove to be converted into warehouses and offices. With increased shipping activity, a seawall was built along the present Embarcadero, Yerba Buena Cove was filled (1873) and the old ships were buried,including the Byron, which is estimated to be buried at the corner of Market and Beale Streets.* The South of Market area became San Francisco's first industrial area. Assessed valuation in much of the area is very low.

Upgrading of the area began recently. Within a period of about five years Matson, Pacific Gas & Electric and Bechtel have erected office buildings at 100 Mission, 73 Beale and 50 Beale Streets, respectively. Metropolitan Plaza was recently completed and the new Southern Pacific building is under construction.

E. MAN-MADE FACILITIES

1. Structures

The existing structures on the site number seven, with heights up to 325 feet. These can be seen in the aerial view, Plate 5. The building materials are primarily brick and/or concrete, except for 50 Beale Street which is of steel frame construction. All but one of the structures on the site are currently in use, with varying degrees of occupancy. The site contains the 23-story Bechtel Building and an adjacent 4-story office building which will remain. Four four- and five-story buildings would be replaced by the new structures. Ground floor occupants of the buildings that would be demolished include a delicatessen, barbershop, coffee shop, bar, office equipment dealer and several small retail shops.** The upper floors (offices) are unoccupied or temporarily occupied.

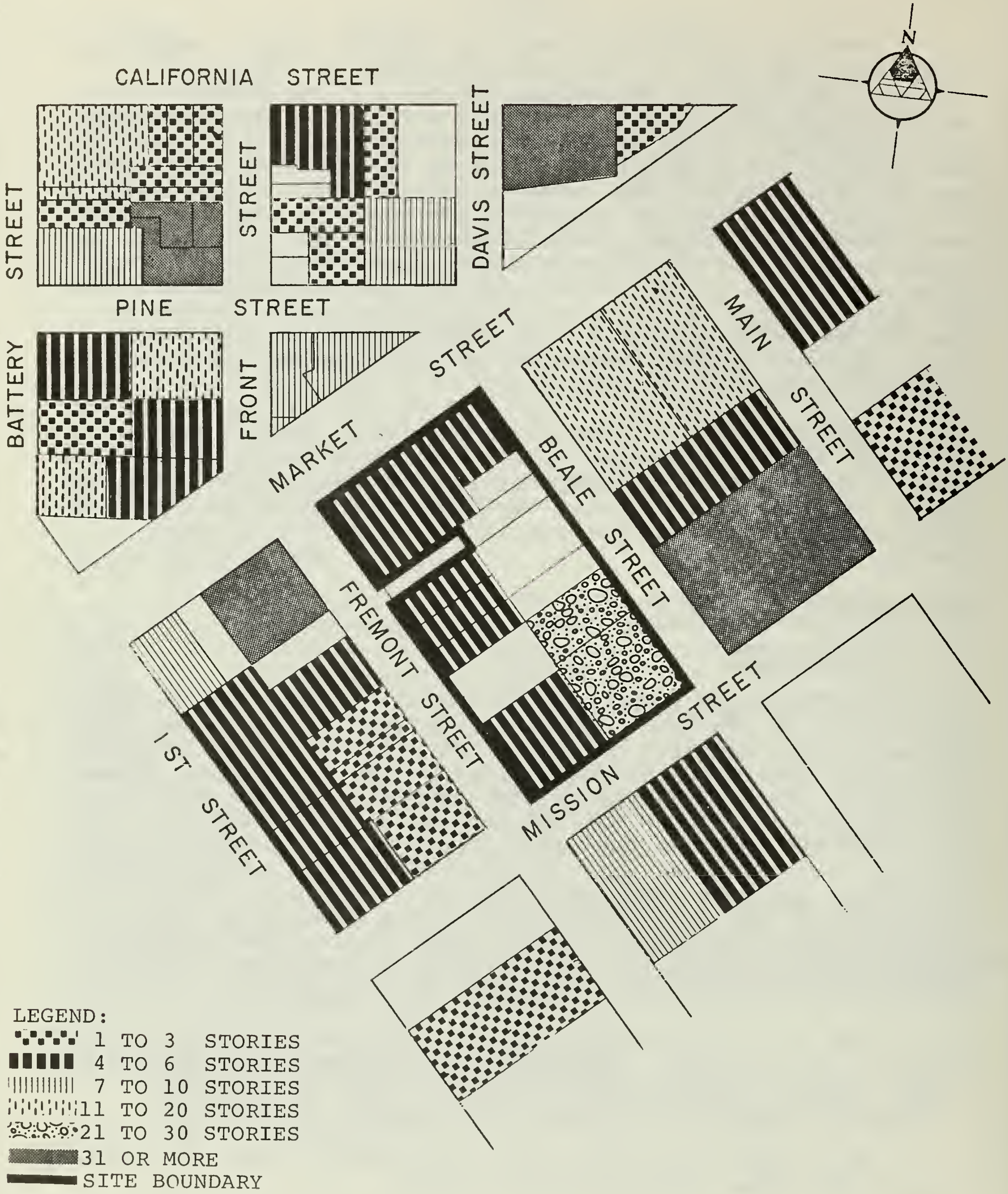
The site is currently zoned C-3-0. The principal permitted uses are offices, retail business and services, and parking lots. Height and bulk zone is 600 I, which limits height to 600 feet, length to 170 feet, and diagonal to 200 feet.

The height, age and usage of buildings in the surrounding blocks are shown on Plates 6, 7, and 8.

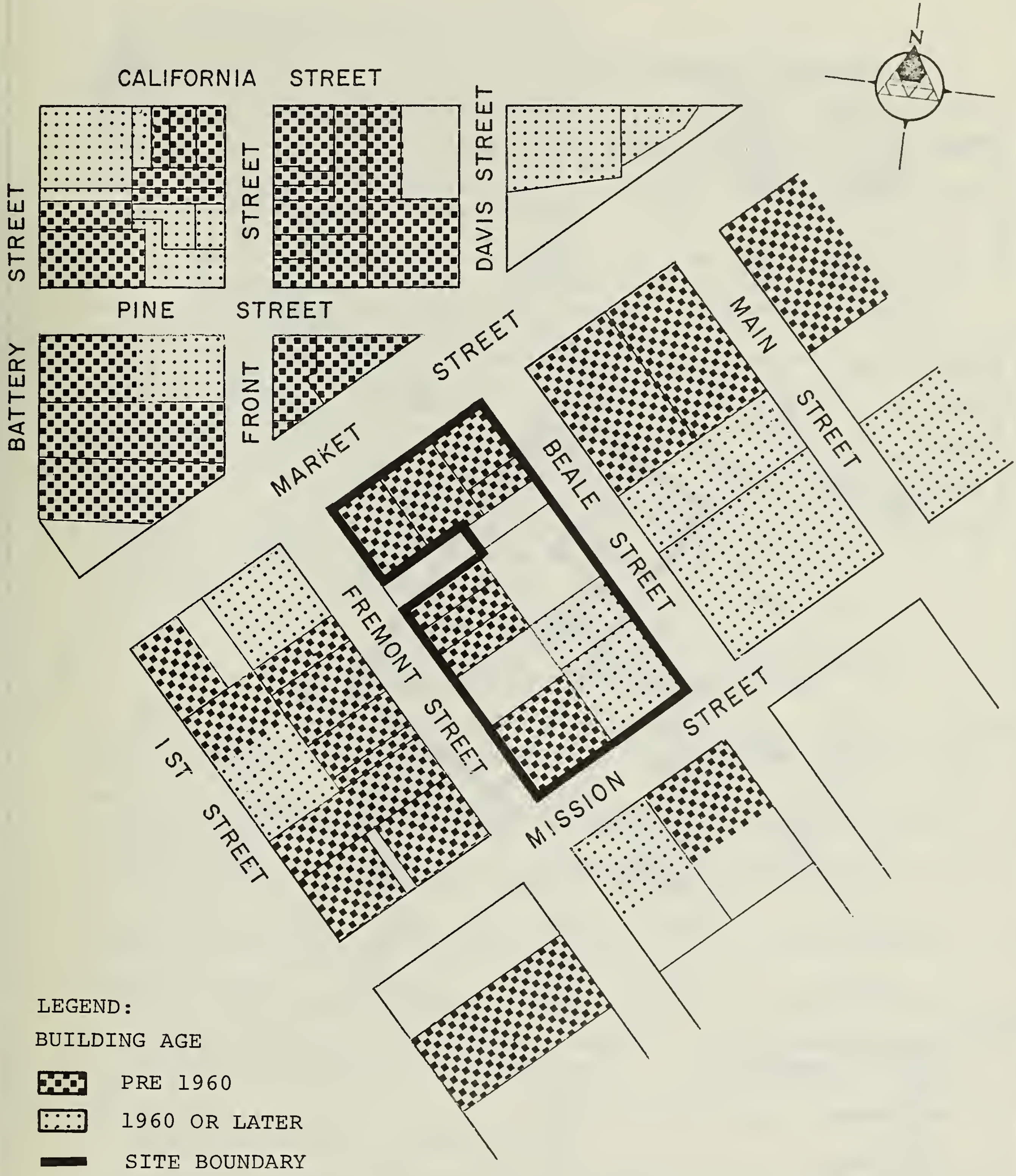
---

* San Francisco News-Call Bulletin, July 16, 1964.

** All but four of these have relocated since preliminary submittal of this EIR to City Planning on November 18, 1974.

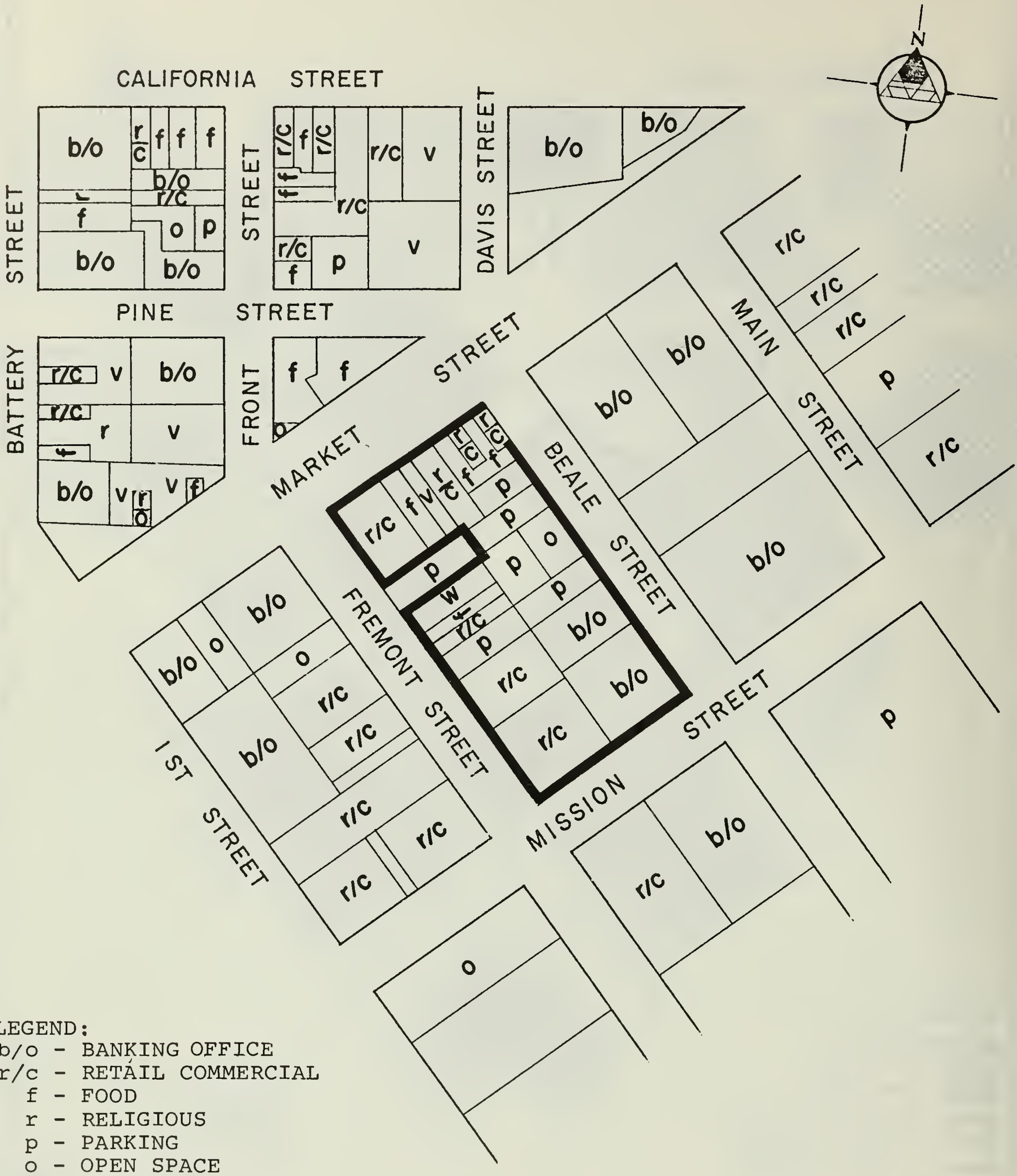


EXISTING BUILDING HEIGHT
IN PROJECT VICINITY



EXISTING BUILDING AGE
IN AREAS AROUND PROJECT SITE

PLATE 7



LEGEND:
b/o - BANKING OFFICE
r/c - RETAIL COMMERCIAL
f - FOOD
r - RELIGIOUS
p - PARKING
o - OPEN SPACE
w - WEARHOUSE
v - VACANT
▬ SITE BOUNDARY

GROUND FLOOR USE IN PROJECT VICINITY

PLATE 8

2. Highways and Street Network

Access to San Francisco and the proposed project site is provided by a variety of means. Highways 101, 80 and 50 provide access over bridges across the Golden Gate and the San Francisco Bay, and along the peninsula from the north, east and south. Highways 580 and 280 come into the region from the south. A network of city streets provides access within the city and surrounding communities.

Table I gives traffic counts and peak capacities for Beale, Fremont and Mission Streets. Due to construction no recent counts are available for Market Street. The Comprehensive Transportation Element designates Market, Mission, Beale, Main, Battery, Pine and Bush Streets as major thoroughfares. These are defined as "cross-town thoroughfares whose primary function is to link districts within the city and to distribute traffic from and to the freeways." Main Street serves as an exit from the freeway and Beale Street provides access to the freeway at Mission Street. The City of San Francisco Transit Preferential Streets Program assigns priority to transit vehicular movement on Mission Street in this area.* There are no secondary or recreational streets designated in the project area.

TABLE I

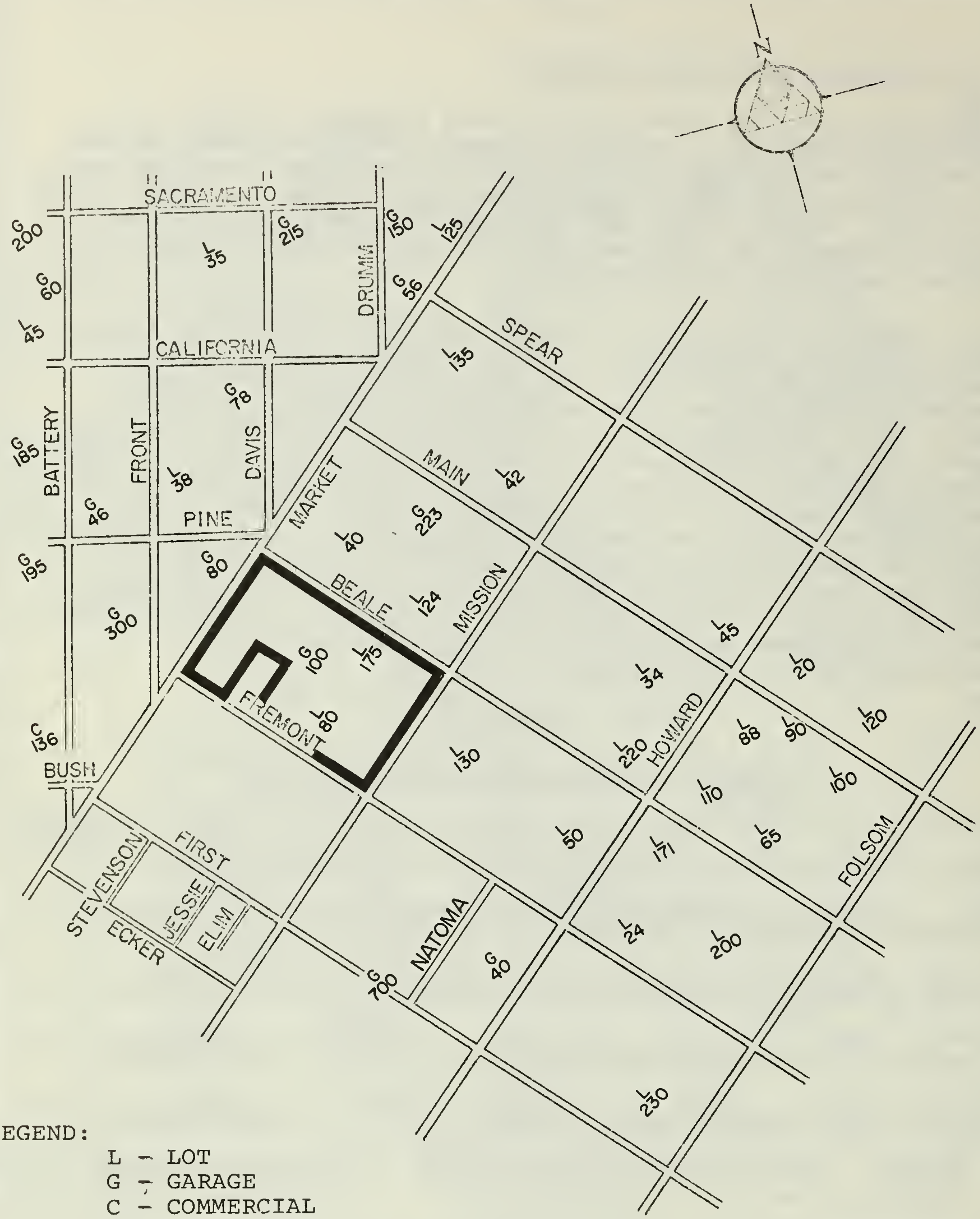
TRAFFIC COUNTS[1] AND PEAK CAPACITIES[2]

Street	24 Hours	7a.m.-9a.m.	4p.m.-6p.m.	10a.m.-3p.m.	Peak Capacity	Traffic Lanes[3]
Beale	8153	1202	1790	2333	2000/hr	4
South of Market southbound December 18, 1972					(parking)	
Fremont	8076	927	1041	2687	1200/hr	3
South of Market northbound December 5, 1972					(parking)	
Mission	6767	640	982	1929	925/hr	3
East of Main eastbound June 2, 1969					(no parking)	
Mission	7106	603	1104	1830	925/hr	3
East of Spear westbound June 3, 1969					(no parking)	

1. Source: Department of Public Works, Traffic Engineering Division, Bureau of Engineering
2. Assuming 50 percent green signals, 10 percent commercial vehicles, and 10 percent turns.
3. Between 4 and 6 p.m. during weekdays. At other times Fremont and Mission have only two lanes.

---

* Transit Preferential Streets Program - A Joint Report by Public Works, Municipal Railway and City Planning, San Francisco, 1973.



LEGEND:

L – LOT
G – GARAGE
C – COMMERCIAL
▬ SITE BOUNDARY

OFF STREET PARKING IN VICINITY OF PROJECT

PLATE 9

Off-street parking in the area is provided by various garages and lots. There is presently one 355-space facility located in the same block as the project. Plate 9 shows the size and location of off-street parking facilities within a two-block radius of the project.

Plate 10 illustrates the number, type, and location of on-street parking places, towaway and loading zones in the streets surrounding the project. Plate 11 gives the number and type of on-street parking and loading zones within two blocks of the project.

The only existing bicycle route in the area of the project is Drumm Street between Market and Jackson Streets. Spear, Market, and Battery Streets are scheduled to be improved as bicycle routes. There is very little recreational bicycling in the downtown area. Bechtel personnel know of no bicycle commuters to the site. Messenger services produce the only major bicycle traffic. An average of 30 deliveries and pickups are made by messengers daily to the present Bechtel offices at 50 Beale Street.

3. Transit Services

The project site is ideally located for public transportation. Market, Mission, First and Fremont Streets are designated as transit preferential streets by the Transportation Element of the San Francisco Comprehensive Plan.

Sixteen Municipal Railway bus routes currently provide transit service to the project site or to within one block of the site. The five street car lines that have not been replaced by buses provide service to First Street, one block from the site. Table II gives the usage of these lines in 1973-1974.

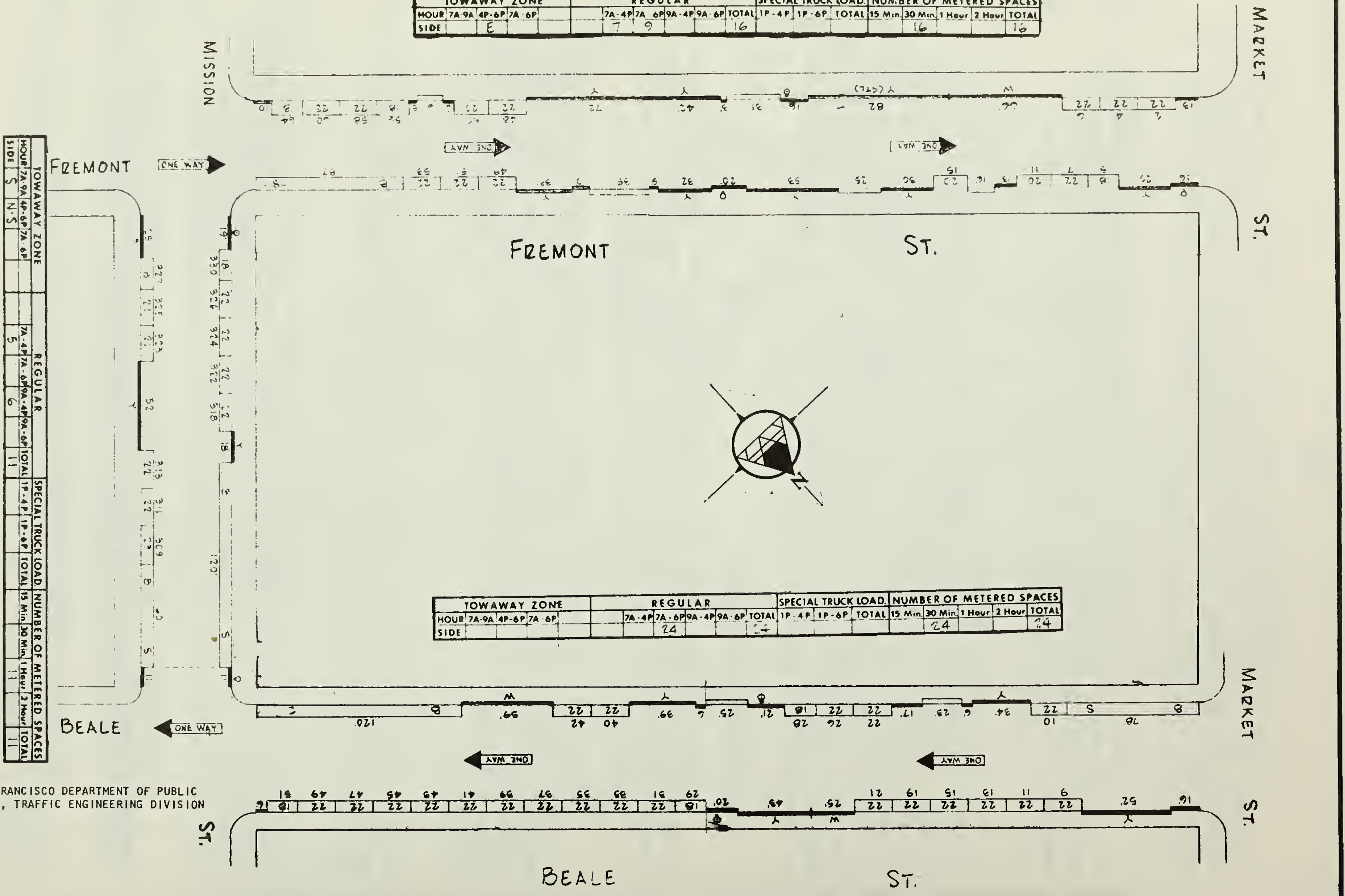
Ferry service to Sausalito and Tiburon is available five blocks away. Golden Gate Transit buses provide service to Marin County, and points north, from the Transbay Terminal one-and-one-half blocks south of the site.

An entrance to the BART Embarcadero Station on Market Street will exist within the proposed project. BART service is provided from Daly City and from East Bay communities to San Francisco. A. C. Transit buses now provide service from 17 lines in the East Bay directly to the Transbay Terminal.

The Southern Pacific Transportation Company provides rail commuter service from the southern peninsula communitites to the terminal one mile south of the site.

The Muni subway system now under construction is expected to be completed by 1976. This system will reduce loads on the surface system.

PARKING METER SPACES



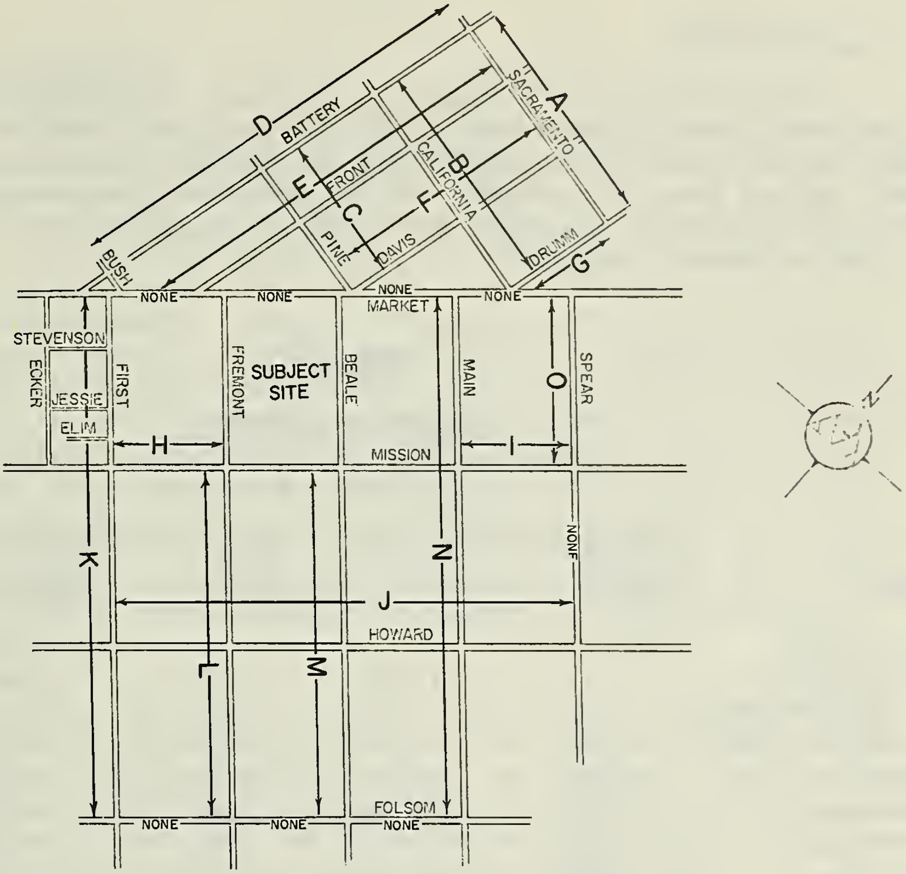
TOWAWAY ZONE					REGULAR						SPECIAL TRUCK LOAD.			NUMBER OF METERED SPACES				
HOUR	7A-9A	4P-6P	7A-6P			7A-4P	7A 6P	9A-4P	9A-6P	TOTAL	1P-4P	1P-6P	TOTAL	15 Min.	30 Min.	1 Hour	2 Hour	TOTAL
SIDE		E				7	9			16					16			16

TOWAWAY ZONE					REGULAR						SPECIAL TRUCK LOAD.			NUMBER OF METERED SPACES				
HOUR	7A-9A	4P-6P	7A-6P			7A-4P	7A-6P	9A-4P	9A-6P	TOTAL	1P-4P	1P-6P	TOTAL	15 Min.	30 Min.	1 Hour	2 Hour	TOTAL
SIDE							24			24					24			24

TOWAWAY ZONE					REGULAR						SPECIAL TRUCK LOAD.			NUMBER OF METERED SPACES				
HOUR	7A-9A	4P-6P	7A-6P			7A-4P	7A-6P	9A-4P	9A-6P	TOTAL	1P-4P	1P-6P	TOTAL	15 Min.	30 Min.	1 Hour	2 Hour	TOTAL
SIDE	S	N·S				5		6		11						11		11

SOURCE; SAN FRANCISCO DEPARTMENT OF PUBLIC WORKS, TRAFFIC ENGINEERING DIVISION

PLATE 10



NUMBER LOCATION AND TYPE OF PARKING METERS, LOADING AND TOWAWAY ZONES AND PARKING SPACES

	TOWAWAY ZONE 1				REGULAR					SPECIAL TRUCK LOADING ZONE			NUMBER OF METERED SPACES 2				
	7A-9A	4P-6P	7A-6P	24HRS	7A-4P	7A-6P	9A-4P	9A-6P	TOTAL	1P-4P	1P-6P	TOTAL	15MIN	30MIN	1HR	2HR	TOTAL
A		N+S			12				12	6		6		18			18
B	S	S+N			2	4			6					6			6
C	N	N	S				10		10					10			10
D	W	W				1			1	2	18	20		21			21
E		W				8			8		18	18		26			26
F		W			4	13			17	3	8	11		28			28
G						3			3					3			3
H		N			4				4						4		4
I		N+S			9				9						9		9
J						41			41						41		41
K	*	E+W*	W		2	31	7		40						40		40
L						35			35						35		35
M						60									60		60
N				W	57				57		3	3		15	45		60
O						11			11						11		11

1. LETTERS INDICATE SIDE OF SHEET WHERE ZONE IS LOCATED
2. INCLUDES LOADING ZONE SPACES WITH METERS
* PART-TIME BUS ZONE

SOURCE: DEPARTMENT OF PUBLIC WORKS
TRAFFIC ENGINEERING DIVISION
BUREAU OF ENGINEERING

NUMBER, LOCATION & TYPE OF PARKING METERS, LOADING & TOWAWAY ZONES & PARKING SPACES

4. Railways

Railroad spurs served by the Belt Railroad from tracks along the Embarcadero are still in use, but the volume of traffic is small. The spurs are owned by Southern Pacific Railroad, Santa Fe and others. It is possible that these would be used for delivery of some materials required for construction of the proposed project.

TABLE II

TRANSIT RIDERSHIP

1973-1974 Average

LINE	6a.m. 11p.m.	7a.m. 9a.m	4p.m. 6p.m.	10a.m. 3p.m.	Peak* Capacity
Market St.					
31 Balboa	4937	1399	1432	1182	910
32 Embarcadero	na	na	na	na	na
5 McAllister	5549	1399	1488	1011	1020
7 Haight	2541	568	612	592	340
8 Market	4558	1174	1237	874	830
6 Masonic	3871	957	950	803	600
21 Hayes	4249	747	1018	1179	670
Mission St.					
14 Mission	7691	997	1577	2415	900
12 Ocean	4452	844	857	954	540
9 Richland	1866	498	539	428	390
11 Hoffman	2364	679	672	550	540
STREETCARS					
J Church	5331	1290	1110	1310	810
K Ingleside	7667	1801	1996	1709	1350
L Taraval	8103	2350	1870	1714	1330
M Oceanview	na	na	na	na	na
N Judah	10723	2753	2400	2884	1850
MISCELLANEOUS					
41 Union	4167	1716	1237	497	1130
38 Geary	3507	1975	2777	3114	1530
15 Kearny	3149	937	664	715	540
42 3rd Evans	8648	2338	2458	1725	1760

na - not available
* one-way for one hour
Source: S. F. Municipal Railway
Annual Report 1973-1974

F. RELATED PROJECTS

The project most directly related to the proposed project is the future development of the adjacent block toward the southwest, Assessor's Block 3709. The applicant has a development plan which shows a 34-story office building and two large low-rise retail buildings in that block (Plate 12).

The Development Plan for Blocks 3709 and 3710 has as its principal objective the creation of a planned office and commercial development that will enhance and contribute to the orderly and creative growth of downtown San Francisco. Because property ownership has been largely consolidated, there is the opportunity to locate the principal structures, both immediate and future, in proper relationship to each other, with light and air being introduced into mid-block pedestrian walkways which will provide interest and amenity at street level. The concept is based on the following design criteria:

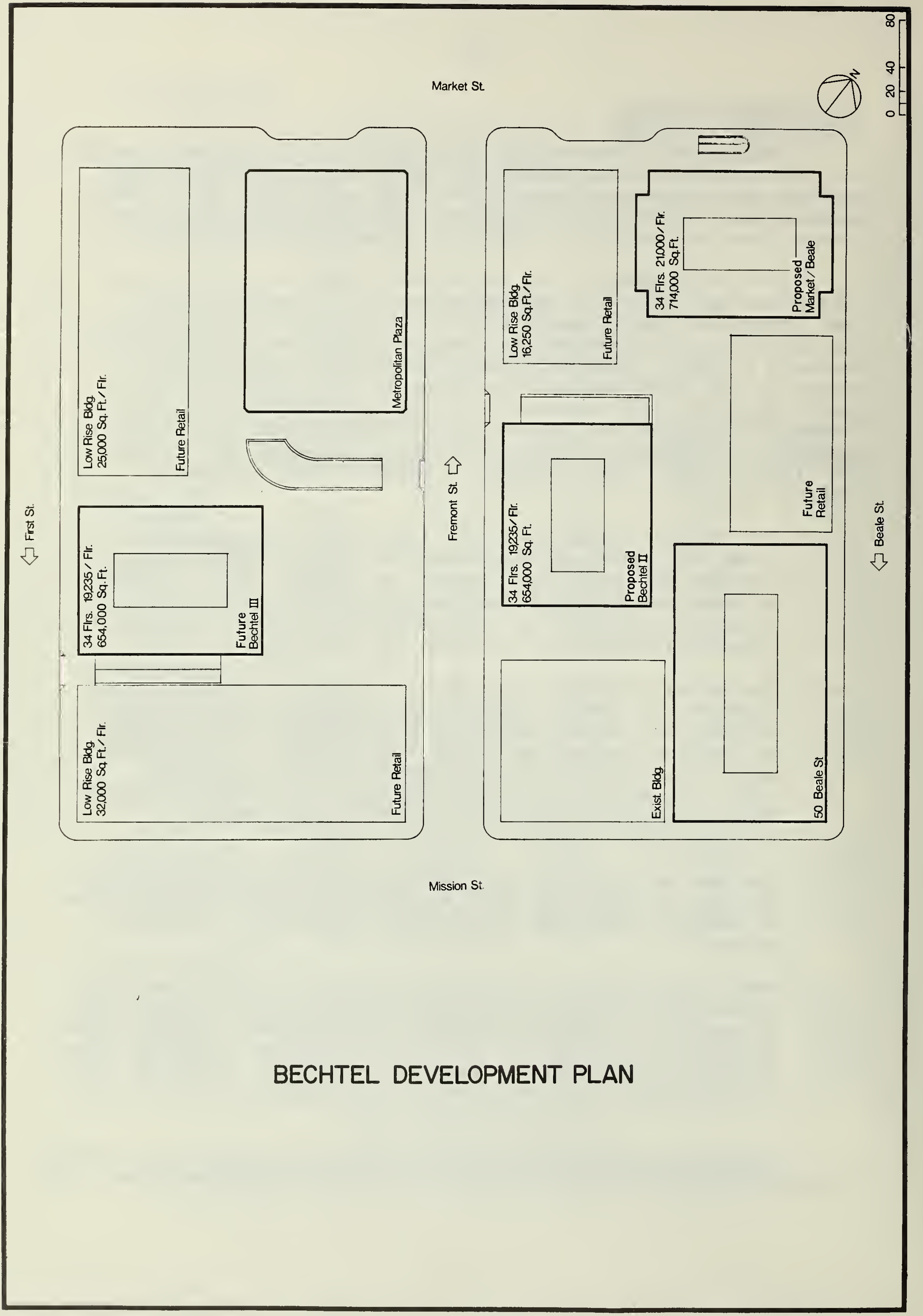
(a) The taller buildings (over 150 feet) are separated from each other in such a manner as to permit views through and past the complex, at street level as well as from nearby buildings and the city's hills. No immediate abutment of tall buildings would occur as occurs elsewhere in downtown San Francisco.

(b) The total building area to be placed on the site is a function of proper spacing and building relationship rather than exploitation of the maximum FAR permitted by current zoning and other regulations. It is estimated that the total development (Blocks 3709 and 3710) would result in the addition of 1,784,000 square feet of office space and no significant change in retail space.

(c) The mix of high and low buildings is planned to create variety of building form and to add visual interest both at street level and when viewed from higher vantage points.

(d) Most significantly, the plan provides for maximum development of interior pedestrian movement through the site by means of intimately scaled walkways and resting areas which will be open to the public. The use of these areas would be encouraged by the interspersing at ground level of commercial and other pedestrian-oriented activities.

Phasing of separate projects within the development would be based on site availability and economic considerations. If



BECHTEL DEVELOPMENT PLAN

PLATE 12

any of these projects is undertaken in the future, separate EIR's will be written. This EIR is for the project described herein. Any future alternatives to the planned development would be considered, within the constraints of the design criteria, on the basis of planning objectives of the City and market information existing at the time.

Nearby projects being planned by others are the 444 Market Street Building to be located between Bush and Pine Streets east of Battery, and the Tishman Cahill high-rise building planned for the block between Pine and California east of Front.

III. ENVIRONMENTAL IMPACT OF PROPOSED PROJECT

A. DEMOLITION

Demolition of existing structures on the site would take place as required by construction schedules. It is anticipated that the demolition process would create short-term noise, vibration, dust and minor traffic congestion.

B. LAND

1. Soil Stability

The present project conception indicates that the construction and operation of the proposed project would not have a significant adverse effect upon the present soil stability within the site or adjacent areas. The soil consultant will provide planning and design recommendations with respect to alleviating any potential short-term safety hazards resulting from lateral displacement of earth associated with vibration and excavations which might occur during the construction phase of the project. These will be based on a future geotechnical investigation. No long-term safety hazards are anticipated.

It is considered possible for some liquefaction to occur in the upper sand layer during strong earthquakes. However, the potential will be decreased if the project is implemented because the thickness of the sand layer will be decreased by excavation for the basements, and the density will be increased by pile driving. Furthermore, the building would be supported on piles driven into material not subject to liquefaction.

2. Land Form Features

The proposed development would have no impact upon the land form features of the site or surrounding area. Presently-planned grading operations are within the site limits and except for basement excavations would consist of minor cuts and fills. The cuts would be made in order to construct below-grade parking areas. The resultant excavations would be braced during construction to prevent cave-in. The final site grading would require only minimal fill thickness in order to conform to the planned landscaping and plaza.

3. Areal Settlements

The proposed development would not significantly affect the present site settlement pattern which is essentially static. The foundations of the proposed structures will be designed to carry their loads into firm bearing materials below the compressible Recent Bay Mud deposits. The foundation design study will provide an estimate of the very small settlement that can be anticipated.

4. Seismic Response

It is unlikely that the present seismic response of the site would be altered significantly since soil-structure interaction effects have been shown to be small for structures of the type proposed.* This response has not been calculated, but it is determined principally by characteristics of the soil layers existing above bedrock.

5. Erosion and Sedimentation

The proposed development would not have a significant effect upon the present erosion and sedimentation patterns of the immediate site area as the site is already presently covered by pavements and buildings with runoff being carried through the municipal combined sanitary-storm drain system.

C. WATER

1. Resources and Quality

The proposed project would have a negligible effect upon the groundwater in the site vicinity. Preliminary design considerations regarding groundwater levels indicate that drawdown**adjacent to the structures will not be required. The proposed development would not affect the groundwater movements throughout the site.

---

[*] Seed, H. Bolton, Dynamic Characteristics of Soil-Structure Systems, Conference on Planning and Design of Tall Buildings, Lehigh University, August, 1972.

[**] Pumping of water which decreases the groundwater level beyond the site perimeter.

The possibility of contamination of the local groundwater regime is considered slight and would only occur in the event of a utility line leak or break. If minor contamination were to occur, the impact upon the environment would be negligible because groundwater this close to the bay shoreline is not a potential source of drinking water.

2. Runoff and Drainage

At present, the existing buildings, and asphalt and concrete surface coverings essentially do not allow any infiltration of the rainwater into the groundwater. All of the runoff water is collected and transferred from the site area via the combined sanitary-storm drain system located in the adjacent streets. The proposed development would also restrict the infiltration of rainwater into the groundwater, and would provide for more positive site runoff and drainage through site grading and installation of storm drain systems within the site area.

3. Sewage (See Section I. 3. - Utilities.)

D. PLANT AND ANIMAL LIFE

The plants now present within the site area are discussed in Section II D. These plants do not contribute to protection against soil erosion by wind or water for the little soil that is exposed. Removal of the plants would be of no consequence in this regard. Removal of the plants would result in no change of the existing status of seed dispersal of important or useful species, nor would their removal include any species whose pollen is essential to plants in adjacent areas. No plants presently on the site would be left standing to be incorporated into the landscaping plans of the project. There are normal urban air and soil microflora associated with both the existing plants and the new plants to be introduced.

The proposed project includes plans for planting of ornamental and/or native plant species at ground level. This would increase the vegetation on the site, both in the number of individuals and in the number of species represented. The plantings would include many trees and shrubs as well as herbaceous flowering plants. This increased and enriched vegetation would provide many favorable habitats and niches for birds. Landscape plans would be discussed with the Building Department and the Planning Department when completed.

The buildings to be erected on the site would not shade out other plants of adjacent areas. The surrounding areas are occupied by buildings. The plants to be introduced onto the site would afford no competition for water or minerals to any other plants nearby.

The project as planned would enhance the flora and fauna of the immediate area and would extend the planted areas.

E. METEOROLOGY AND AIR QUALITY

The proposed development is compatible with surrounding high rise development and would not materially alter or significantly affect local meteorological conditions. Exceptions include localized alterations in local wind and temperature fields, which are expected to be in the microscale range. The site is currently well protected from the prevailing west and northwest winds, but is relatively exposed to winds from the south, east, and north. The south and southeast winds are less frequent than the west and northwest winds,but they are considered important because they occur during winter storms and are often associated with rain.

Tall buildings generally have the capacity to deflect wind down to pedestrian levels, resulting in discomfort and inconvenience. Wind tunnel tests show that during a west wind the project would provide shelter in its plaza and wind conditions in the surrounding streets would not be deteriorated. In a northwest wind the project would cause relatively strong winds on Market Street, and moderate winds in parts of the plaza and Fremont Street. However, most of the site would not be seriously affected.

Under south and southwest winds, the project would cause high winds within the plaza and in certain parts of adjacent streets. The project would be likely to increase discomfort during winter storms, which occur less than 12 percent of the time in winter but which have a high proportion of strong winds. The project would have few detrimental effects under the remaining wind directions.

Further development downtown has not been analyzed in detail but the wind tunnel results indicate that completion of future buildings nearby would decrease wind velocities within and around the project site. Suggested design changes resulting from the wind tunnel studies would minimize some of the detrimental wind effects. These would be studied during detailed design of the buildings and plaza and would be incorporated, where considered appropriate, to improve pedestrian comfort.

A general discussion of wind directions from each of the eight compass points is included in Appendix B, Volume 2.

A comfort study based on results of the wind tunnel studies and a shadow analysis indicates that relatively uncomfortable areas would exist in passageways between buildings and on the sidewalks southwest of the existing building at Market and Fremont, and northeast of the proposed investment building. The greatest probability of discomfort is in the summer season because of persistent westerly winds and probable lack of heavy clothing. Probability of discomfort at one location on Market Street would be 43 percent, and in one passageway it would be 76 percent. In the fall, these probabilities would be 21 percent and 44 percent respectively. In the spring and winter the highest probabilities are 15 percent and 7 percent respectively. Complete results of the analysis are included in Appendix B, Volume 2.

It is planned to provide interior heating by gas-fired boiler. Emissions from these facilities would include small amounts of nitrogen oxides and carbon monoxide. However, because natural gas burns almost completely as a "clean" fuel and emits only very minor quantities of undesirable byproducts of combustion, it is not expected that the operation of this project would have any significant impact on local air quality. The project is designed for a firm gas supply and would not require auxiliary fuel.

During construction activities at the proposed site, dust could become airborne due to construction vehicle activity, grading, etc. It is likely that the local air quality would deteriorate from particulate materials in the atmosphere due to these construction activities, and thus it is important that the abatement procedures discussed in Section V be implemented.

F. TRANSPORTATION AND CIRCULATION SYSTEMS (PUBLIC AND PRIVATE)

The project would provide approximately 200 parking spaces compared to a total of 355 presently available. This reduction in available parking can be expected to result in additional demand for parking in peripheral locations. It is also expected that this increase in parking difficulty, combined with the excellent accessibility to public transportation, would result in decreased usage of the automobile by the day-time population of the project site on a percentage basis.

The increase in total number of commuters would cause some increase in traffic on the local street system, but a more significant effect would be the temporary disruptions created by the moving of large construction equipment to and from the project site, and heavy truck traffic. The time estimated for various phases of construction are listed below. There would be large amounts of overlap between some of these so total construction time would be less than the sum of the phases.

PERIOD	TIME (MONTHS)
Demolition	3
Excavation and Foundation Concrete	5
Pile Driving	4
Additional Concrete Transit	2
Steel Erection (Delivery period)	6
Exterior Cladding (Delivery period)	4

The greatest interference with smooth flow of traffic would probably result from removal of excavated material and delivery of concrete. It is estimated that as many as 50 trucks per day would enter and leave the site during two periods of two months each. Delivery of steel, cladding and other construction materials may result in as many as 20 trucks per day occasionally but the average would be much fewer over a ten-month period. Concrete deliveries are required to be continual throughout the morning. As a result, there could be as many as six trucks entering and leaving the site during the morning peak hour. It is anticipated that the regular flow of traffic on Beale, Mission and Fremont Streets would decrease because of construction barricades, and congestion in neighboring streets would increase during the construction period. Afternoon tow-away zones on the north side of Mission and east side of Fremont would be closed.

Parking spaces along the barricades and on the site would not be usable during the construction period. This would result in overloading of the nearby parking lots and increased business for lots farther away. Some increased usage of public transportation by commuters to this area can be expected to reduce these effects.

In addition to the truck traffic during construction there would be some traffic resulting from construction workers going to and from work. Most of these automobiles would arrive by 7:30 a.m. and leave by 4:30 p.m. and would not contribute directly to the peak hour congestion. They would add to the overloading of parking facilities, however.

Traffic increases that would be generated by the project can be estimated as follows: The Investment Building and the Bechtel II building would each have approximately 3,825 employees, making a total of 7,650. These employees would be commuting to and from the project area each work day. They would reside in many Bay Area communities and use the various transportation modes at their disposal (Table III). Table III lists commuter trips only. Bechtel visitors would add a few trips during the day, and there would doubtless be some non-peak period trips from the Investment Building. For those employees who do not drive to work there is the San Francisco Municipal Railway in San Francisco, AC Transit serving the East Bay (with a Transbay Terminal at Mission and First Streets in in San Francisco), the Southern Pacific Transportation Company which provides commuter train service to the Southern Peninsula communities, the Golden Gate Ferry and Golden Gate Transit buses which provide service to Marin County, and the Bay Area Rapid Transit District providing commuter service to Daly City and the East Bay communities.

In order to assess the extent of the project on transportation modes it is necessary to predict the increase in commuters in the project area. Bechtel estimates that 90 percent of the employees in the Bechtel II building would come from other Bechtel offices that are already in the project area. Therefore, only 10 percent (383) of the total number of employees in Bechtel II would impact the various transportation modes to this area. On the other hand, if all vacated offices are leased, the number of new employees requiring transportation could be as many as 3,825.

The source of tenants for the Investment Building cannot be estimated, but if 40 percent are assumed to be presently commuting into the downtown area, the remaining 60 percent(2295) would be new users of the various transportation modes. As would be the case with the Bechtel II building, those who come from the surrounding area would leave office space that may be filled again. The extent of the impact of the project on the area's transportation modes would depend upon the number of old office spaces leased. As the space is leased, impact on transit lines would increase, and would be most noticeable at the intersection of Van Ness and Market Streets, which is the maximum load point for almost all lines using Market Street. Commuters boarding Market Street lines near Van Ness in the evening may experience increased difficulty in finding a seat at times. The average capacity during the period from 4 to 6 p.m. is 50 to 88 percent utilized. (See Table II, page 22.)

The Muni subway system which is now under construction is expected to be completed by 1976. This new facility would reduce the impact of increased transit ridership along Market Street and help alleviate the loads at Market and Van Ness Streets. When completed, the rail system will have the capability of doubling the existing capacity.*

---

* Mr. Gerald Cauthen, Supervising Engineer, Municipal Railway, personal communication, January 1975.

According to Walter B. Lewis, Schedule Supervisor for the Muni, lines serving the Embarcadero area of the financial district are experiencing increases due to the recent construction of office buildings in that area. Some of these lines also serve the project area (41 Union, 15 Kearny, 42 3rd Evans).

TABLE III

AUTO AND TRANSIT TRIPS GENERATED BY PROJECT

BECHTEL II

RESIDENCE	1.	TOTAL	AUTO	TRANSIT
San Francisco	39	1492	746	746
East Bay[2]	34	1300	728	572
Marin County	10	383	287	96
San Mateo County	13	497	297	182
Santa Clara County	4	153	95	58
TOTAL	100	3825	2153	1672

INVESTMENT BUILDING

RESIDENCE	3.	TOTAL	AUTO	TRANSIT
San Francisco	60	2295	1147	1148
East Bay	13	497	278	219
Marin County	7	268	201	67
San Mateo County	15	574	356	218
Santa Clara County	5	191	118	73
TOTAL	100	3825	2100	1725

1. Percentages derived from present distribution of Bechtel employees.

2. Alameda and Contra Costa Counties.

3. Percentages derived from San Francisco guidelines for transportation impacts.

Source: Bechtel Corporation.
City and County of San Francisco.

G. LAND USE

The proposed office development has been designed to blend with its environs. Its implementation would replace the existing parking lot use and the uses listed on page 17 with the office and retail use described in Section I.C.

Future plans include development of Block 3709 on the opposite side of Fremont Street. This would further develop the overall landscaped plaza concept and increase open space areas. The plan is shown on Plate 12 and the philosophy of the design criteria is discussed in paragraph II. F. There is no certainty that any of this future development will occur.

H. POPULATION

The present daytime population of the proposed site area is approximately 4530 persons. The proposed project would increase the daytime population of the site area to an estimated 11,930 people. This is an increase of 7400. Due to the nature of the planned building use, these people would be predominantly office and retail shop employees. All occupants of 45 Fremont Street and one-third of the remainder would be Bechtel employees. The estimated population increase from the total development (Blocks 3709 and 3710) would be 11,460.

The projected nighttime population for building operation and maintenance would be less than one percent of the daytime population, assuming that requirements for the new buildings would be similar to those for the Bechtel Building at 50 Beale Street.

Most of the business operations would relocate. Some of the shops and offices in the area might be displaced temporarily, depending in part upon the construction schedule. Some of the office tenants and small businesses within the site boundaries may find new, improved quarters in the proposed project. A reasonable estimate of unemployment resulting from the displacement would be on the order of one dozen persons.*

---

*As of January 20, 1975 only four businesses remained. According to Mr. Allan Maginis of Milton Meyer & Co., Real Estate Managers, all others have relocated without any problems, except for one bankruptcy unrelated to the proposed project. It is expected that no unemployment would result from the project.

I. SERVICES, UTILITIES AND SCHOOLS

1. Fire Protection

The proposed project has been discussed with Chief Gautier of the San Francisco Fire Department. He states that protection services presently available are adequate to cover the proposed project.

The fire station nearest the proposed project is located on Drumm Street between Market and Sacramento. This is scheduled to be replaced by the new station being constructed at the corner of Sansome and Washington, seven blocks from the project site.

There are currently two sources of water in the area, a low pressure system and a high pressure system designed for high reliability during an earthquake. Discussions with Mr. Gilbert Bendix, Superintendent of the Water Supply Bureau of the San Francisco Fire Department, indicated that the water supply system is capable of servicing the proposed project and will continue to be so.

2. Police

The current crime rate (based on an average number of incidents) in the project neighborhood (Police Plot B-3) is average.* Development of the project area would result in increased pedestrian and vehicular activity and it is expected that traffic congestion would be a slightly greater problem than it is now during peak hours. The incidence of crime (robbery, burglary, assault, etc.) in similar office-building environments is very low. The most frequently reported crime in modern high-rise office buildings is grand theft. The incidence of theft would probably be decreased by the project to an even lower rate because of security measures in the proposed buildings. The Bechtel II Building would have a 24-hour security guard with admittance granted to Bechtel employees and authorized visitors only. The Investment Building would have a closed circuit television monitoring system for elevators and hallways, and a pass required for admittance after 6:30 p.m. It is estimated that additional annual costs for police protection and traffic control would be approximately $40,000.*

---

*According to Officer Bernardini, SFPD Planning and Research Bureau.

3. Utilities

The proposed project plans to utilize the available water, gas, telephone, electric power and sanitary systems. It is anticipated that these utilities will be underground. The present water lines can accommodate the proposed project without any expansion required.[1] Pacific Gas and Electric[2] and Pacific Telephone[3] are prepared to install the necessary additional leads into the project area. (See Appendix A.)

The present combined sewage and storm drainage system has sufficient capacity to accommodate the increased demand resulting from this project. However, the capacity of the North Point Pollution Control Plant which processes the sewage from this area is frequently exceeded during wet weather when peak flow rates are high. During these periods, the plant operates at capacity and discharges the excess flow untreated into the San Francisco Bay at the Main and Howard outfall. The North Point Pollution Control Plant provides only primary treatment of sewage and discharges waste into the Bay which does not conform with the water quality requirements of the San Francisco Bay Regional Water Quality Control Board. Consequently, the Regional Water Quality Control Board has served the North Point Plant with a Cease and Desist Order (Resolution No. 72-90, Adopted October 26, 1972). This resolution has been amended to permit operation during a period scheduled for implementing the San Francisco Master Plan for Wastewater Management.

The environmental impact of this project upon the Bay is therefore contingent upon the North Point Pollution Control Plant's compliance with the Regional Water Quality Control Board's resolution. Assuming that the Master Plan for Wastewater Management is fully implemented, the proposed project would have no adverse impact on the water quality of the Bay. If, however, the North Point to Southeast Transporter Implementation Program No. 1 has not been completed by the time the project is completed, sewage from this project would add to the pollution burden of the San Francisco Bay. The Environmental Impact Report and Statement for this part of the Master Plan was adopted on May 24, 1974 by EPA and the City and County of San Francisco. Sewage flow from this project would be 0.152 million gallons per day compared to the 65 million gallons per day present load on the North Point plant.

1/ Mr. C. Wentworth, Engineering Division, S. F. Water Dept.

2/ Mr. Gerald Tyson, Pacific Gas and Electric.

3/ Mr. Torkelson, Building Industry Consultant, Pacific Telephone Company.

Anticipated utility loads from the proposed project are as follows:[1]

Water (7650 people X 25 gal./person/day) = 190,000 gallons/day

Sewage (190,000 gal. water/day X 80%) = 152,000 gallons/day

Electricity (1,370,000 sq. ft. X 1.49 kwh/mo./sq. ft. = 2,039,000 kwh/month

Gas Heat (1,370,000 sq. ft. X 5.675 Btu/hr./sq.ft.) = 7,775,000 Btu/hr year-round average

Annual Gas Usage @ 260 days,* x 12 hr.**/day X 7.775 x 10 Btu/hr.avg. = 24.3 X 10^9 Btu/yr.

Peak Gas Consumption = 18,600 $\frac{\text{cu.ft.}}{\text{hour}}$

Peak Electric Load = 11,000 kva

Curves showing daily and annual electric load distribution are shown on Plates 13 and 14. Daily and annual gas load distribution curves are shown on Plates 15 and 16.

4. Solid Waste Disposal

Trash removal would be handled by the Golden Gate Disposal Company. According to Mr. Pete Gardella of that Company the statistics of the National Solid Waste Management Association indicate that one pound of trash would be generated per hundred square feet of usable office space per day. On this basis the proposed project would generate one truck load of approximately five tons of solid waste per day. Golden Gate can accommodate this increased demand. The pickup would be scheduled for 2:00 to 3:00 a.m.

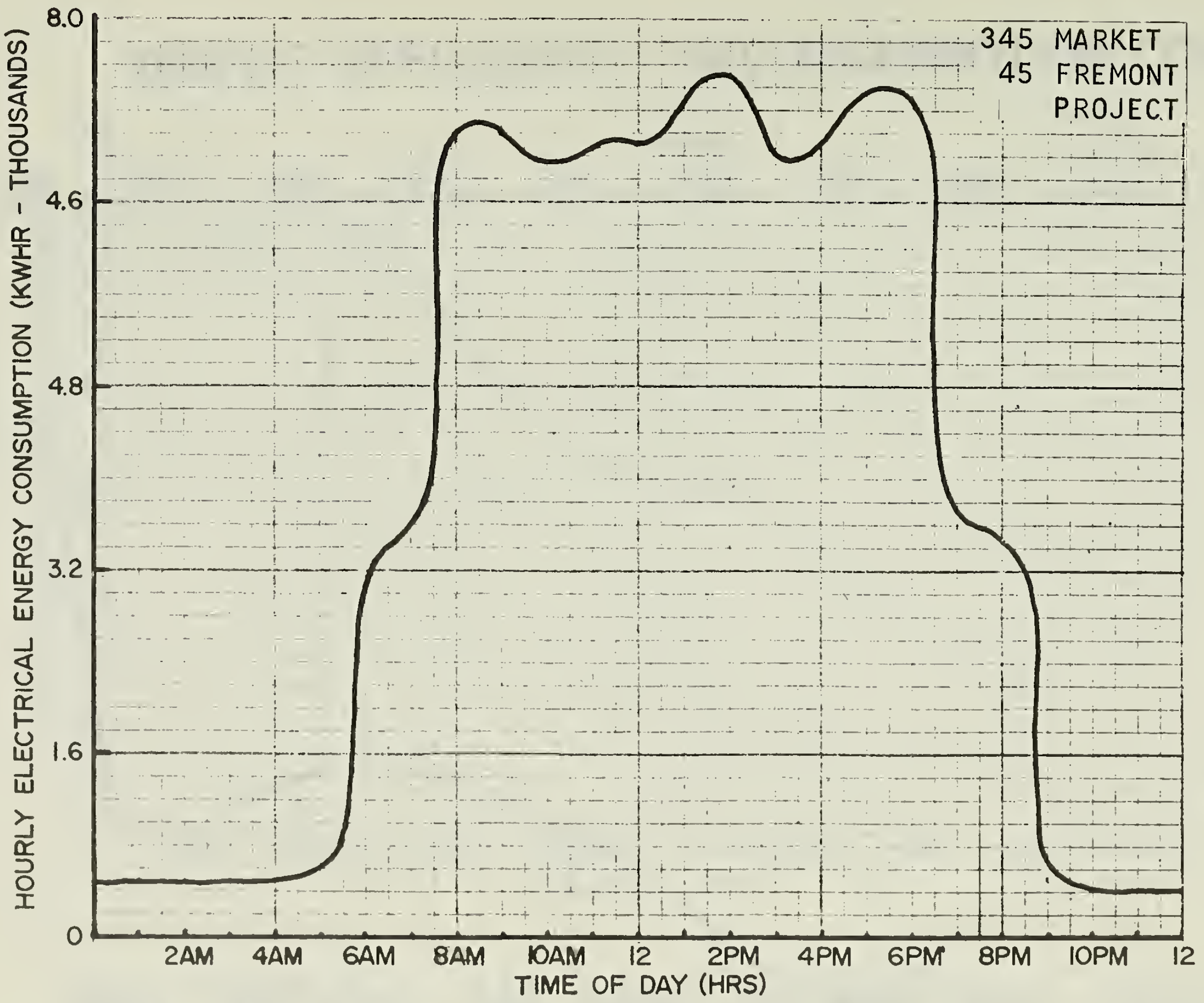
This project would increase the total city demand for landfill volume by approximately 0.25 percent, thereby decreasing by approximately one week the period remaining for landfill availability. (Mr. Gardella estimates the available space in Mountain View would require eight years to fill.)

---

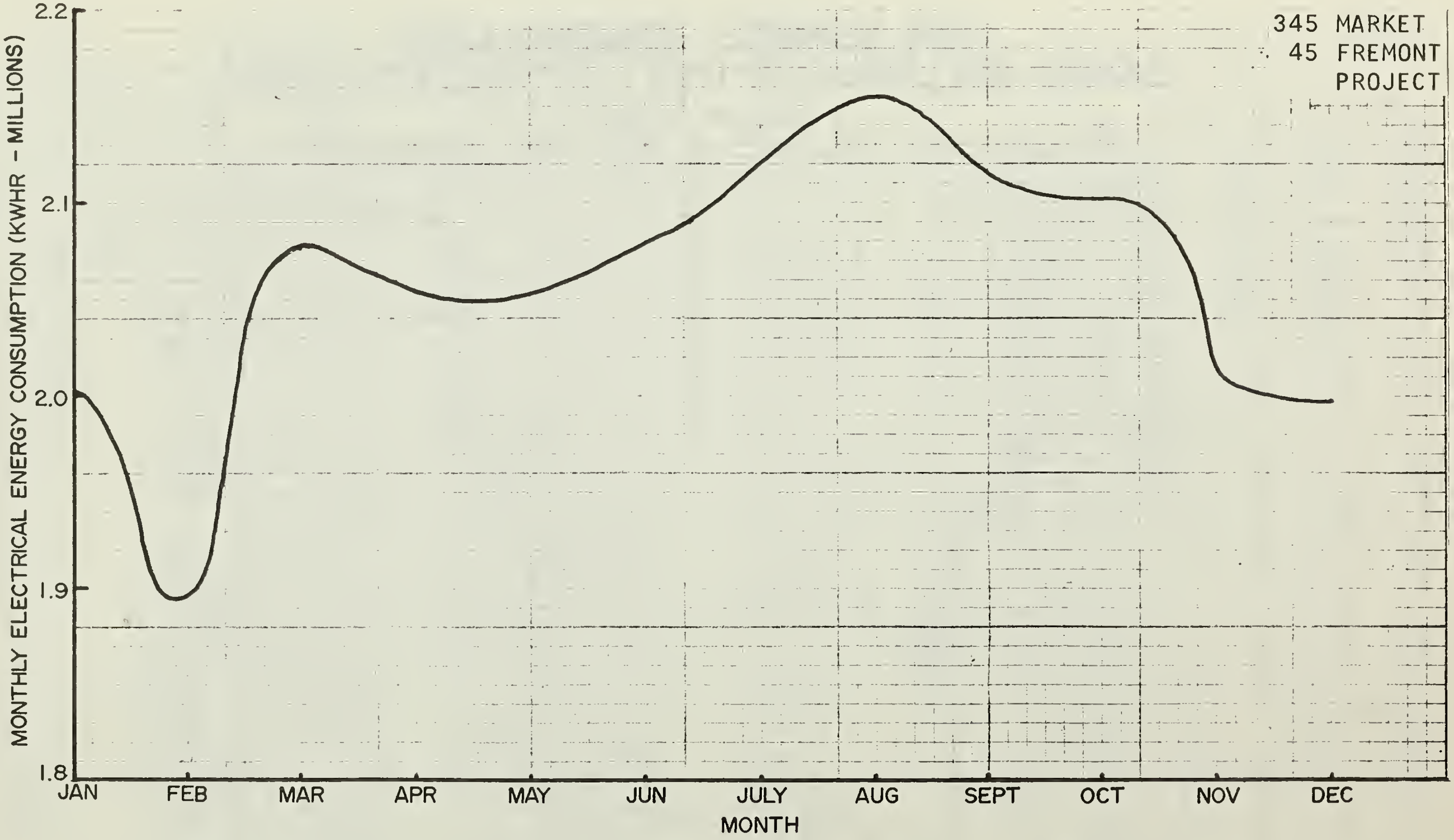
[1] Sewage flow is approximately 80 percent of water usage; electric load is 1.49 kwh/mo./sq.ft. gross area; gas usage is 5.675 BTU/hr./sq.ft. Annual usage is based on a year-round average of twelve hours per day operating time for the heating system.

* Operating days per year.

**Average hours per day heating system in operation on year-round basis.

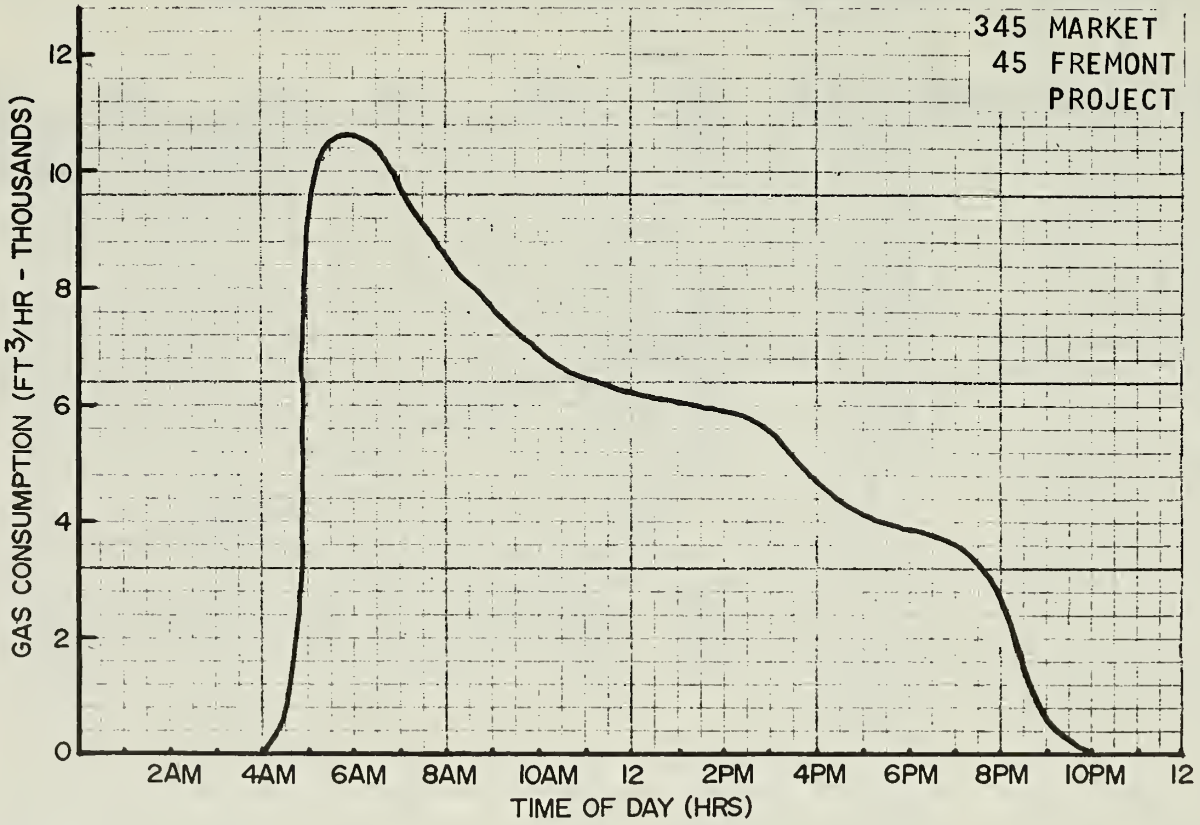


DAILY ELECTRICAL LOAD DISTRIBUTION CURVE
(FOR AVERAGE SUMMER DAY)



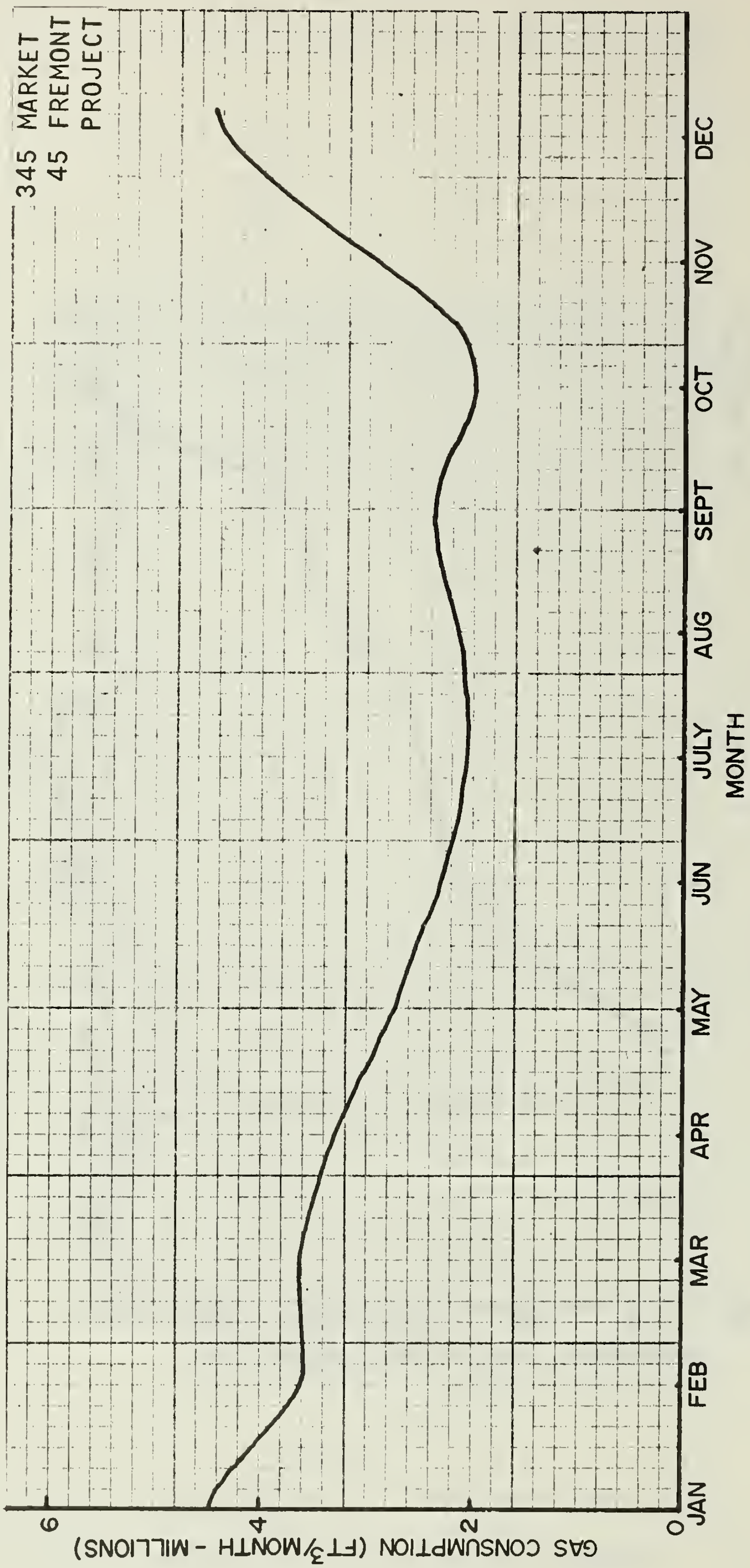
ANNUAL ELECTRICAL LOAD DISTRIBUTION CURVE

PLATE 14



DAILY NATURAL GAS LOAD DISTRIBUTION CURVE
(FOR AVERAGE WINTER DAY)

PLATE 15



ANNUAL GAS LOAD DISTRIBUTION CURVE

PLATE 16

J. SOCIAL AND ECONOMIC EFFECTS

The planned project would continue the development of an area, the economic productivity of which had until recently been decreasing.

With an estimated daytime population increase of about 7400 persons, expenditures in the area by these individuals would amount to several million dollars per year in local shops and service activities. New jobs would be created in the operation and maintenance of the buildings, shops, services and parking facilities. Approximately 60 percent* of the new employees can be expected to come from outside the city. Unemployment within the city would be reduced by the remaining new jobs. There would be increased employment in the construction industry while the project is being built.

Upgrading of the area would continue to increase tax revenues to the City and County of San Francisco and the school districts. Present assessed values and tax revenues for the areas that would be affected by construction are shown below:

Lot No.	Land	Improvements	Total	Taxes** 1973 - 1974
	(Multiply by 1000)			
1	$ 234.6	$ 60	$ 294.6	$ 36,088
1C	22.0	41	63	7,717
2	37.6	52.5	90.2	11,048
13	315.1	89.2	404.3	49,536
14	76.5	137.5	214.	26,215
7	76.2	3.9	80.1	9,818
8	37.8	56.7	94.5	11,579
9	37.8	61.2	99	12,127
10	37.8	0.8	38.5	4,722
TOTALS:	$875.4	$502.8	$1378.2	$168,850

---

* San Francisco Guidelines for EIR Process/Transportation Impacts.

**Taken from tax statements.

At present the city, county and school districts are realizing less than $17,000 per year in tax revenues from these areas. At an estimated development cost of $80 million, the 1974-75 combined tax rate of $12.75 per $100 of assessed value would increase the revenues to the city by well over $2 million per year. This amount would offset any increased costs resulting from added requirements for police and fire protection and traffic control (see Appendix A).

Additional income would result from sales taxes on local purchases made in the area by that fraction of the daytime population new to San Francisco and from property taxes in new shops and service facilities that would spring up to serve these new people.

Some increased costs may be anticipated because of possible increased requirements for traffic control. Construction of the project buildings should reduce the danger from fire to a level below that for the existing structures; therefore, requirements for fire protection should be lessened. Requirements for additional police protection should not be substantially higher than for the area in its present condition because nearly all of the population would be there during daytime hours only (see Appendix A).

Approximately 4530 persons are now employed within the site boundaries. Two hundred fifty of these are in buildings which would be demolished. Eighty percent of these are Bechtel employees who would be moved into the new building when completed. Most of the others would probably be relocated by their present employers.*

2. Historical or Archeological Sites

The site area is identified in a historic sense with the old downtown business section of San Francisco. However, there are no designated historical buildings, monuments or sites and no known archaeological sites within the project boundaries or immediately adjacent. A map at the Maritime Museum indicates that a buried ship lies in the vicinity of Market and Beale, but this has not been verified. The question regarding the possibility of historical buildings, monuments or sites in the area of the proposed project is being brought up at the next meeting of the Landmarks Board on January 22, 1975.

---

*The draft of this EIR was submitted on November 18, 1974. As of January 10, 1975 the Bechtel employees were in other Bechtel facilities, and mutual arrangements were being made by Bechtel and the remaining four employers for relocation.

3. Scenic Views or Vistas

Planned building heights are well below the established city height restrictions. Some views would be blocked for a few occupants of surrounding buildings. Shadows created by the project would have a negligible impact on the surrounding area. There are three modest-sized plazas of potential concern within the shadow pattern of the project. These plazas are currently shaded during portions of the day by high-rise buildings in the vicinity; shadows from this project would extend this period of shade somewhat, particularly during winter mid-day when the sun is at a lower angle. At other times of the day and season, shadows will generally fall on built-up areas. Plate 17 illustrates typical shadows which would be cast by the towers.

4. Noise and Vibration

A considerable amount of noise and vibration would be generated during construction activities. The greatest noise and vibration levels would result from the pile driving and excavation equipment. It is anticipated that piling foundations would be employed for the building. All construction contracts would specify that construction activities shall be in compliance with San Francisco noise ordinances. The following tabulation lists typical noise levels for equipment to be used in the construction.

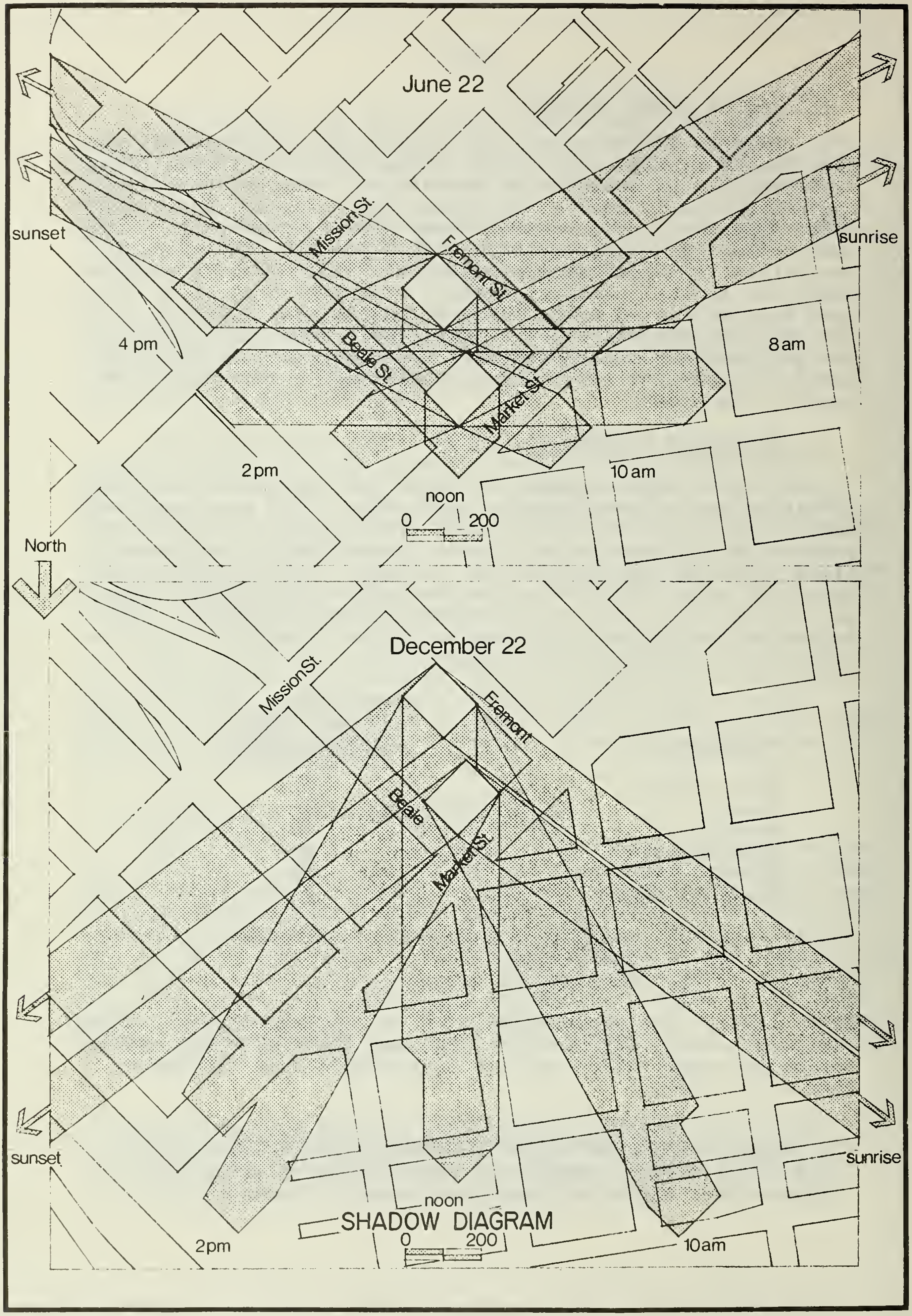
Equipment	Noise Levels At 50 Feet From Observer(dBA)*
Pile Driver	97
Truck	91
Scraper	88
Jack Hammer	88
Crane	88
Concrete Mixer	85

Source: Noise from Construction Equipment and Operations,
NTID 300.1, December 1971.

It is likely that improvement will be required in some of this equipment before 1977 in order to meet the City's requirement for noise levels which will go into effect then (80 dBA or less @ 100 feet).

---

* A standard scale of sound level measurement which takes into account the response of normal human hearing to sounds over the entire audible range of frequencies.



SHADOW DIAGRAM

As a basis of comparison for these noise levels--normal conversation levels range from about 43 to 57 dBA; noise level 50 feet from an automobile traveling at 50 miles per hour ranges from 62 to 85 dBA.

Although high noise and vibration levels are anticipated during construction due to the heavy equipment required, levels would be substantially decreased following construction activities, and are expected to be compatible with and similar to other commercial/office areas. Following the completion of construction, the greatest noise and vibration levels in the area would be generated from traffic on Mission and Market Streets. The increase attributable to this project would not be noticeable.

The proposed site is in a general area designated by the Transportation Noise Element as one where new construction should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Such a detailed analysis was made (Appendix C) which shows that a design level of 65 to 70 dBA should be used at the proposed building locations and that normal building construction techniques will generally suffice except for any acoustically critical spaces in lower floors. Light frame structures provide reduction of 20 decibels and masonry structures provide a reduction of 25 decibels.*

5. Construction Hazards

Hazards during the project construction are expected to be typical of those generally associated with construction of this type; e.g., accidental utility breakage or rupture, bulkhead failure or traffic accidents due to trucks, etc.

Soil pressures against the perimeter bracing would be affected by a major earthquake during construction. The foundation investigation report will recommend that shoring members be designed to allow for uncertainties in loading, including potential earthquake loading.

6. Earthquake Hazard

The project buildings are being designed by application of two distinct analytical techniques:

---

* FWPA Policy and Procedure Memorandum 90-2, reported in Transportation Noise-Environmental Protection Element of the Comprehensive Plan of San Francisco, as proposed for citizen review, August, 1974.

1. Static analysis in accordance with the requirements of the San Francisco Building Code, wherein the earthquake force and building response are treated as though static and time-independent.
2. Dynamic response spectrum analysis to test the behavior of the building when subjected to earthquake forces exceeding those stipulated by code. This technique takes into account the time-dependent, dynamic nature of the seismic forces and the dynamic response of the building to these forces.

The result will be buildings designed to be more resistant to earthquake forces than otherwise contemplated by the Building Code.

IV. ANY ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED IF THE PROPOSAL IS IMPLEMENTED

There are no significant unavoidable long-term adverse environmental impacts associated with the project; short-term impacts and the reduction of their effects have been previously discussed, and are listed below:

Demolition and construction would create noise, vibration and traffic congestion. Some dust and other pollutants would be added to ambient air.

The project would cause wind velocities to be increased during winter storms, thereby decreasing pedestrian comfort at certain locations within the project's plaza and adjacent streets.

The added daytime population of 7400 persons would increase traffic congestion during peak hours and would increase the load on transit and parking facilities.

Other increases associated with the additional downtown population are as follows:

1. Carbon monoxide, nitrogen oxides and hydrocarbons added to the atmosphere.
2. Energy consumption, both natural gas and electric power.
3. Requirements for police services, especially for traffic control.
4. Water usage and waste discharge.
5. Solid waste.

Approximately 250 persons would be displaced. Two-hundred of these are Bechtel employees to be located in other facilities during construction and would return to the project when completed.

The buildings would block some views and cast shadows which would decrease comfort at certain times in certain areas.

Probability of accidents to motorists and pedestrians would be increased during construction.

V. MEASURES PROPOSED TO MINIMIZE IMPACT

Alterations To Existing Conditions	Measures To Minimize Impact
Increased sewage quantities would go to North Point Pollution Control Plant, which presently does not meet quality standards of effluent discharge.	The Master Plan for Waste Water Management of the City provides for new treatment facilities and thus phases out the North Point Plant.
Energy usage would be increased by the project.	Lighting intensity throughout will be designed to provide minimum intensity compatible with functional purposes. The ventilation system and operational procedure will be designed to use minimum amounts of outside air during the heating season. Heat-retarding glass would be used to reduce the air conditioning load. Other measures being evaluated by the design engineers: - Use of a heat pump system - Thermal storage - Extracting heat from building exhaust
The project would be visible from the streets and neighboring buildings.	Design of the proposed building heights has been reduced to less than the allowable limits, and a major design objective is to provide an aesthetically pleasing appearance. The buildings are located so as to offer landscaped view "corridors" into the project. The building masses are separated by the landscaped areas.
Addition of 1-1/3 million square feet of modern office commercial space.	Project development would partially satisfy a demand for employment in the downtown area served by public transportation. Number of parking spaces would be reduced, thereby stimulating increased usage of public transportation.
Wind velocity would increase at pedestrian level.	Design details of pedestrian facilities will be developed to reduce effect and provide for pedestrian comfort.

Noisy location.	Normal wall construction would attenuate sound to a level consistent with almost all office uses. Acoustically critical areas would be acoustically insulated.
Noise generation by building equipment	Major noise producing mechanical equipment that would be a source of noise is to be located on the 25th floor and in the basement, mounted on heavy bases and isolating springs. The cooling tower is to be located at the roof level enclosed within the penthouse and will also have heavy bases and isolating springs. At these locations, the equipment would have minimal sound impact on the surrounding areas. Duct work at the 25th floor would be designed and equipped so as to attenuate equipment noise and minimize its transfer to other areas.
Articles of historic interest may be excavated.	The project manager would cooperate with appropriate authorities to save, protect and remove all archaeological discoveries found within the excavated space. The contractors would be required to immediately notify Bechtel if such discoveries were made. Bechtel would in turn notify the authorities.
Dust generation by construction activities.	Construction roads would be paved, oiled or wet down during use. Traffic would be restricted to roadways. Areas to be graded would be wet down. Trucks loaded with dry materials would be covered or wet down. Local roadways would be kept free of wheel mud and load spillage.
Site is in an area of possible liquefaction as defined in the Blume Report and is in a special geological study area.	Recommendations resulting from the soils and foundation study would be implemented to minimize adverse effects from earthquakes. The soils investigation would be conducted with Policy 4 of the San Francisco Community Safety Element in mind.
Excavation hazard during possible earthquake.	Shoring recommended by soils consultant would be used to prevent cave-in.

VI. ALTERNATIVES TO THE PROPOSED PROJECT

One alternative would be no project. The effects of no development would be that existing older structures would continue to deteriorate and eventually become unsuitable for use. Current conditions, reflected in low assessed valuation, are thereby depressing the area economically. A revenue increase to the City of more than $2 million annually would be lost as a result of this alternative. Stimulus for continuation of current improvement of the surrounding area would be decreased.

A second alternative would be a hotel. Effects of this alternative would be similar to those described for the proposed project except that peak hour traffic congestion would be somewhat less. Early plans included a hotel on the site but a review by Bechtel indicated that hotel rooms in San Francisco are currently overbuilt and this would not be feasible. A hotel in a noisy location is less desirable than an office building.

A third alternative would be retail usage. Effects would be similar to that of the proposed project except for those associated with building height. Wind effects would probably be less. This area is not presently a prime retail location but as the daytime population increases there would be a demand for small retail and service facilities. Although the project as proposed includes minimal provisions for retail functions, the Bechtel Development Plan makes provisions for expansion of such activities. This expansion would be phased in as the developer determines there is sufficient market opportunity.

A fourth alternative would be residential development. Effects would be similar to those of the proposed project except that traffic congestion might be less. There are presently no high quality residential developments in the immediate area and Bechtel sees no evidence of any significant demand for such development at the present time. The Bechtel Development Plan provides a potential for apartment facilities. These might be constructed at such time as a market survey indicates sufficient demand. At an appropriate time this alternative could be desirable because of the excellent public transportation facilities nearby.

A fifth alternative would be an alternate height design. The developer's requirements for this project were to provide space in each building for a maximum number of people at the most favorable construction cost. The greatest impact on the project costs is reflected in structural steel and foundation costs. Soil conditions limit the weight (and correspondingly the height) of the project to the described limits as the maximum that can be supported on "short" piles. Six-hundred-foot-high buildings could be constructed within the height limits at this site, but the construction cost would be adversely affected. A decrease in height would require substantially the same piling system as in the existing design but would yield less space within the building for the same general foundation and structural steel cost parameters.

Other design alternatives such as buildings of two different sizes or buildings covering a smaller area would be less than optimum from the standpoint of construction cost per square foot of usable floor space.

VII. RELATIONSHIPS BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The long-term effect of the project would be the stimulation of further development, helping to improve the downtown area south of Market Street. This would mean increased employment opportunities, more commercial areas, increased income, and greater tax revenues, thus providing a diverse and orderly use of the area. With the increased employment provided in an area well served by public transportation, the overall result may be that of less dependence upon the automobile for in-town circulation.

The project would preclude future choices for use of the two building sites, but would leave open many alternatives for the much larger area shown in the Bechtel Development Plan.

The reason for undertaking the project now is that it is currently financially feasible and is consistent with objectives of the City.

VIII. ANY IRREVERSIBLE ENVIRONMENTAL CHANGES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED

Non-renewable energy and material resources would be expended during the project construction phase in the actual construction of the buildings. Such resources would be used on any development of similar size. The project represents a committment for additional office space usage within the city. Although not physically irreversible, the changes that would result from the increased daytime population should be considered irreversible in a social sense. The increased energy usage, traffic congestion and emission of air pollutants would continue. Even if the magnitudes should be reduced by technological change a contribution from this project would persist.

Effect of the buildings on air currents would be reduced by future developments planned by other developers. This, again, does not reverse the change but modifies and/or reduces the effects.

IX. GROWTH-INDUCING IMPACT OF THE PROPOSED ACTION

The project would increase the area's daytime population from approximately 4,350 to 11,930 persons. It would be serving the existing population to a great degree but is intended to attract and to serve additional population, thus providing for future population growth.

As discussed in Section III.F., most of the new population would be drawn from within the downtown area. The degree to which the new population would involve persons not presently working in San Francisco cannot be estimated due to the impossibility of predicting the source of new tenants. It is impossible to predict the extent or rapidity with which the offices vacated for relocation to the subject project would be reoccupied, but it is reasonable to assume that at least 50 percent would eventually be reoccupied. On this basis, the population increase in the downtown area would consist of the unknown number of persons coming into the project site from outside the area plus approximately 2,700 persons that would occupy offices vacated as a result of the project.

Assuming an average expenditure of five or more dollars* per week for meals, local purchases and services, a daytime population of 11,930 persons would spend several million dollars per year. The increased purchasing power in the area would lead to the establishment of small shops and facilities that, in turn, would generate additional demands for goods and services, thus inducing further growth. The increase in population would probably be primarily daytime rather than residential population. Parking facilities would become more overcrowded. Other community facilities would probably not be greatly impacted. The shops attracted to this area would serve the local business community, and would probably attract few shoppers from other areas.

The impact of new growth spurred by the Bechtel project on transit services would be distributed over a large number of lines in five systems of transportation: therefore, the impact would be relatively slight on any given transit line. This impact is discussed in Section III.F.

The project is expected to have a growth-inducing impact upon the downtown area of San Francisco south of Market Street. Through bringing new development to this section, which now has little population and is somewhat deteriorated, a stimulus should be provided for further renovation in adjacent areas.

---

*This is a conservative estimate. The actual multiplier effect would probably be larger, with more economic benefits to this area.

X. ENVIRONMENTAL IMPACT REPORT AUTHORS AND CONSULTANTS

DEPARTMENT OF CITY PLANNING:
100 Larkin Street
San Francisco, CA 94102
Coordinator: Paul Rosetter

Draft EIR

DAMES & MOORE
500 Sansome Street
San Francisco, CA 94111
Registered Engineer: Charles L. Nichols, CA/ C-10026

Environmental and Earth Scientists and Engineers
Draft EIR

JAROS, BAUM & BOLLES
345 Park Avenue
New York, N.Y.
Registered Engineer: Richard Baum, CA/ M-12658

Mechanical/Electrical Engineers
Utilities Demand

SKIDMORE, OWINGS & MERRILL
One Maritime Plaza
San Francisco, CA 94105
Registered Architect: John O. Merrill, CA/ C-1846

ARCHITECTS/ENGINEERS
Project Design

ENVIRONMENTAL IMPACT PLANNING CORP.
319 Eleventh Street
San Francisco, California 94103

Meteorologists and Wind Tunnel Specialists
Wind Tunnel Report

BECHTEL CORPORATION
50 Beale Street
San Francisco, CA 94111

Owner-Developer
Employee Information
Tax Information
Information on Development Decisions

Bolt Beranek and Newman Inc.
120 Howard Street
San Francisco, CA 94105

Acoustical Consultants
Noise Measurements and Analysis

SAN FRANCISCO CITY AND COUNTY

DEPARTMENT	PHONE NUMBER	CONTACT
Police Department	553-1101	Officer R. R. Bernardini
Fire Department	553-0123	Supt. Gilbert G. Bendix
Water Department	558-2979	Mr. Cy Wentworth
Traffic Department	558-3371	Mr. Stanley Chin
Municipal Railway	558-4063	Mr. Walter B. Lewis

UTILITY COMPANIES

Pacific Telephone	542-3981	Mr. Torkelson
Pacific Gas & Electric	781-4211	Mr. Dennis K. Poage